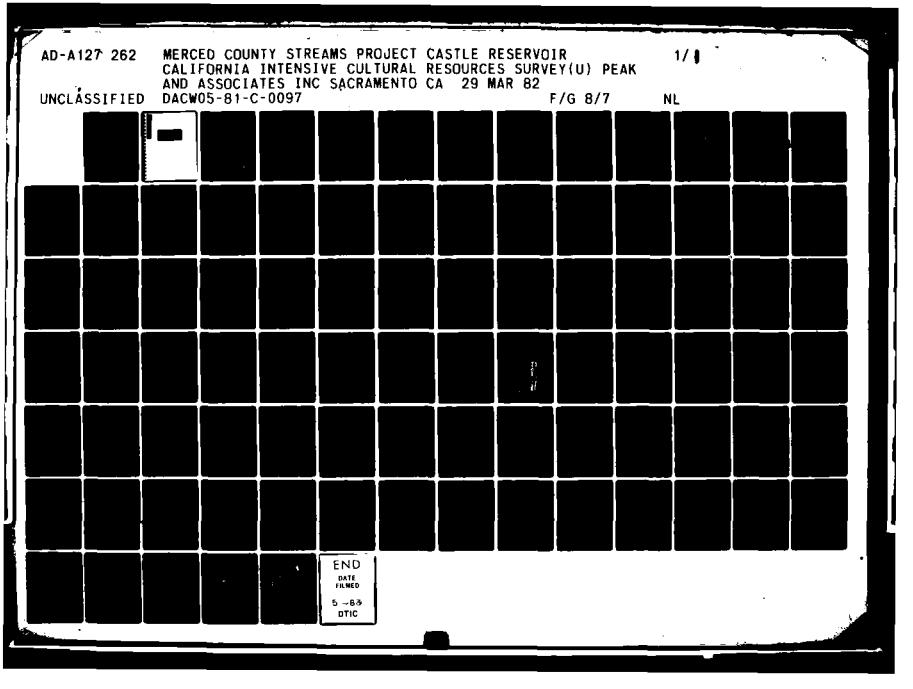
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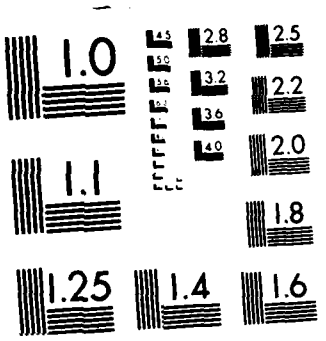

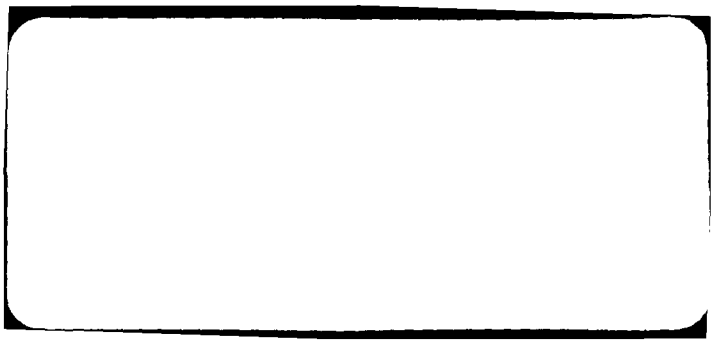

MERCED COUNTY STREAMS PROJECT

CASTLE RESERVOIR, CALIFORNIA

INTENSIVE CULTURAL RESOURCES SURVEY

performed under

Contract #

DACW05-81-C-0097

by

PEAK & ASSOCIATES, INC.
8167A Belvedere Ave.
Sacramento, California 95826

for

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
650 Capitol Mall
Sacramento, California 95814

March 29, 1982

ABSTRACT

Peak & Associates have undertaken the cultural resource survey of the proposed Castle Reservoir. The project is part of the U.S. Army Corps of Engineers' Merced County Streams project. The area to be impacted comprises 859 acres, including the gross pool of the proposed reservoir, as well as associated constructional features. Four resources, all sparse lithic scatters, were found and recorded. The mitigative alternatives are predicated upon the status of the project, the projected impacts, and the nature of the resources. Preservation was emphasized as the best mitigative alternative; but, if not possible, then the mitigative measures proposed were based upon the degree of expected impact. There are two kinds of impacts expected--inundation and destruction--by construction operations. The results of the survey were hampered by a lack of temporally diagnostic artifacts. The overall consensus of the data argues for a late manifestation in the Upper Emergent Period for all of the prehistoric resources found, but whether Miwok or Yokuts could not be established from the surficial evidence.

ACKNOWLEDGEMENTS

No large archeological project/report is the product of one individual. Rather it is a cooperative effort from many people at all stages of the project. In acknowledgement of this, we wish to thank not only the people who contributed with their direct involvement but all others who offered support and encouragement.

We are especially appreciative of the cooperation and assistance offered by the U.S. Army Corps of Engineers' personnel who helped in interpretation of plans and hydrologic data. Patti Johnson, District Archeologist, participated in field review and has provided us with positive critical review of the report during the various preparation stages.

There is no doubt that the field crew deserves a very large share of the credit as they were more than competent and meticulous in identifying and recording the complex cultural resources within this study area. It was a pleasure to have excellent comprehensive field notes and illustrations as the preparation of the report was made so much easier. Despite the extremely hot weather and the long daily walk to and from the work areas, the crew members maintained a high quality or work and retained their good humor. Our deepest thanks to our crew chiefs: Robert Gerry, Richard Kardash, Larry McKee, and Melinda Peak; and to the technicians: Barry Boyer, Herb Dallas, Hannah Gibbs, Stuart Guedon, Sherri Gust, Les Harville, Paul Neimoyer, Patricia Perkins, and William Slater.

The Native American Observer was John (Rusty) Brocchini from the American Indian Council of Mariposa County. Rusty was a great asset to the team, providing insight into Native American values and concerns and also participating in all phases of the field work. His most valuable contribution, in terms of the field work, was in making meticulous scaled drawings of the petroglyphs at the several loci. He also acted as liaison with the interested Native American community. We also appreciated the time and effort expended by the Indian people.

The excellent maps, historic feature illustrations and petroglyph replications are the product of Robert Gerry, Stuart Guedon and Rick Kardash, who expended hundreds of hours on them.

Jeanne Muñoz deserves a great deal of credit for acting as our coordinator with the Native American people and for compiling the historic overviews. She was ably assisted by the historic researcher, Melinda Peak.

Dr. L. K. Napton, California State College, Stanislaus, was more than cooperative in providing permanent trinomials for the cultural resources even though it was done with tight time constraints. His office insured a careful concordance for previously recorded sites and those identified during the 1981 field survey.

Jeffrey Miller made a special trip from Los Angeles to accompany us for one day on the Bear Creek Reservoir survey. He had a great deal of information on the location of many sites--expecially the rock art loci. We are very appreciative of his interest and help.

Perhaps one of the more important persons involved in the report compilation was our tireless office manager, Lori Lyford. She ran innumerable errands, coordinated the work flow, and typed several drafts, all site survey forms, and two of the final reports. She has somehow retained her sense of humor throughout the months of work. Without her diligence, the final product could not have been achieved.

To our typists, Carol Larsen and Teresha Legatos, who produced three of the final reports, we give our deepest thanks.

Finally, we wish to thank the landowners who gave us information on access roads and on resources within their property. To all other persons who provided information, opened archives, and otherwise assisted, please accept our gratitude.

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INTRODUCTION

An intensive cultural resource survey was undertaken within the boundaries of the proposed Castle Reservoir. The work undertaken was part of the Merced County Streams project (Map 1), which is a large flood control project undertaken by the U.S. Army Corps of Engineers. The entire project would consist of the enlargement of Burns and Bear dams, the construction of Haystack and Castle dams, and downstream channel improvements. The purpose of the project is to temporarily store runoff behind ungated dams to prevent downstream flooding. There would be no permanent pools. The cultural resource survey was ordered in accordance with Executive Order 11593 and Public Law 93-291 which requires that all cultural resources which may be impacted by the project be located, inventoried, and evaluated for eligibility to the National Register of Historic Places (Map 1).

As presently designed, the proposed dam will encompass 783 acres. The total acreage involved, including the spillway area, the dike, the dam site, and the improvements to the access road, will increase the total acreage involved to 859 acres.

The project area has been surveyed once before by Ancient Enterprises, Inc., as part of an earlier stage of the Merced County Streams project (Clewlow 1976). Their results were negative.

The impacts will derive primarily from two sources: quarrying of construction materials, and inundation (wave action erosion). Other impacts due to inundation may have to be considered, but they will be of lesser effect.

Evaluation of the significance of each resource was predicated upon its potential to address pertinent regional research questions. The assessment is based upon the surficial evidence, both artifactual and eco-factual. The limitations inherent in a cultural resource survey are recognized and taken fully into account.

The mitigation alternatives proposed are based upon the nature of the resource, its information potential, and the nature of the impacts. The degree of impact to be expected from ungated flood control dams, in comparison to the more studied gated dams, is a question which has not been directly faced before, and our recommendations are predicated with these differences in mind.

The ethnohistoric and historic research has been undertaken by an ethnohistoric consultant and a historic researcher. The ethnohistorian's duties consisted of establishing a liaison with concerned Native American groups, soliciting their knowledge concerning culturally important resources in the project area, conducting primary source archival research and interviews both on the Native Americans and the later ethnic groups of the historic period, the settlement systems, notable personages, and

subsequently incorporating this knowledge into a comprehensive report. The historic researcher helped in the archival research and interviewing of consultants.

Prior to fieldwork, the principal investigator and the ethnohistorian met with the American Indian Council of Mariposa County to determine if they knew of any Native Americans who had knowledge pertaining to the project area. The council suggested a number of Native Americans who would accept a position as an observer. The individual who accepted proved to be a valuable member of the crew, and he provided insights into the interrelationships of sites and features.

SCOPE OF WORK

Purpose

In accordance with Executive Order 11593 and Public Law 93-291, all cultural sites which may be impacted by project construction will be located, inventoried and evaluated for possible nomination to the National Register of Historic Places. The purpose of this work is to intensively survey and inventory the cultural resources at the proposed Bear, Castle, Burns, and Haystack reservoirs, and downstream channel improvements, Merced and Mariposa counties, evaluate all sites for National Register eligibility, and prepare a plan for possible mitigation and preservation actions.

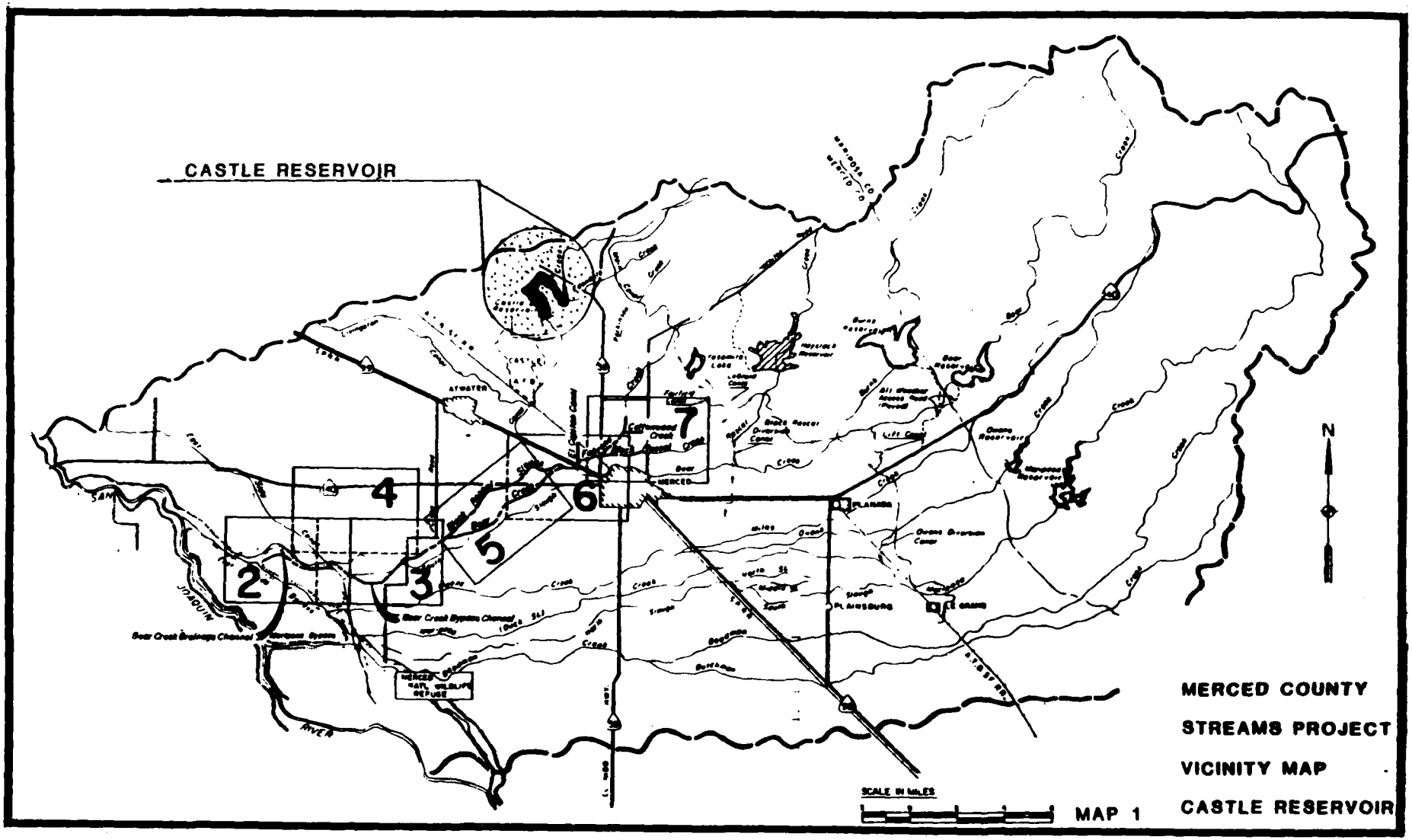
Project Description

The project will consist of: (1) two new detention dams (Castle, Haystack), (2) enlargement and modification of two existing detention dams (Burns and Bear), and (3) about 17 miles of levee and channel modifications.

As designed, the Bear Reservoir will consist of approximately 836 acres to include the dam and spillway, reservoir pool, borrow areas and access roads. Castle Reservoir will consist of about 859 acres to include the dam and spillway, reservoir pool, borrow areas, access roads, and dikes. Haystack Reservoir will consist approximately of 452 acres. The spillway, the bottom of the dam, and the access roads will increase the acreage to 510 acres. The renovation of the Burns Dam will increase the gross pool acreage to 2,179 acres. The associated structures will increase the acreage to 2,310 acres.

Research Design

The Contractor will be responsible for preparation of a research design. The Contracting Officer will review and approve the research design prior to its implementation.


CASTLE RESERVOIR
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SCALE IN MILES
MAP 1
MERCED COUNTY
STREAMS PROJECT
VICINITY MAP
CASTLE RESERVOIR

The general overall research design in the technical proposal shall present the research needs or problem domains the Offeror anticipates accomplishing under this solicitation. Offerors should include, at a minimum, information on the types and extent of study and analyses estimated to be necessary to fulfill these research needs. Archeological, historical, ethnohistorical, and architectual aspects must be addressed. The Offeror's proposed overall research design will be organized into separate sections for prehistoric archeology, historic archeology, and cultural anthropology. The accepted overall research design may be reviewed revised and/or modified as necessary, during the conduct of the program.

Description of Report

Prepare five separate and complete--one for each reservoir and the downstream area--cultural resources intensive survey reports on the effects of the projects on archeological and historical at Bear, Castle, Burns, Haystack, and the downstream areas by accomplishing the following:

Peak & Associates will review previous cultural investigations pertinent to the project area. The review should include a statement summarizing all known cultural sites, their locations if close to or within the project area, and findings from previous surveys, investigations, and ethnographic and historic background statements. Sources include, but not be limited to, county records, the records of the State Historic Preservation Office; the California Archeological Sites Survey Region Office, Stanislaus; the National Register of Historic Places; the California Historical Landmarks; "Final Report on the Archaeological Reconnaissance of the Merced County Streams project, California;" and the report "Cultural Reconnaissance of El Capitan Canal, Black Rascal, Fahrens and Cottonwood Creek."

Local residents, personnel at public institutions, members of local historical societies and others who may have relevant cultural resources information shall be consulted. Such persons contacted shall be identified in the report in an appendix.

Consult with local Native Americans who may assist in identifying sites which they consider to be of religious or cultural importance. Identification of persons contacted and the type of information obtained shall be included in the report in an appendix.

Conduct an intensive on-the-ground survey of Bear Reservoir, consisting of approximately 836 acres; of Castle Reservoir, consisting of approximately 859 acres; of Haystack Reservoir, consisting of approximately 510 acres; of Burns Reservoir, consisting of 2,310 acres, and the downstream channel improvements, designed to located, inventory, and evaluate for possible eligibility to the National Register of Historic Places, all sites within those areas. It is anticipated that the survey work may be interrupted periodically for extended periods of time, as rights-of-entry are being acquired.

Prior to initiation of fieldwork, submit a survey plan for approval by the Government. The survey plan will identify intended survey methodology in detail for both historic and prehistoric sites.

Assess each located cultural site for National Register of Historic Places significance and eligibility. Determination of significance shall be defined in regards to National Register criteria, research potential and possible contributions to local, regional, and national history and prehistory. The basis for evaluation shall be stated explicitly for each site. This information shall appear in tabular form also.

Prepare nominations using Form No. 10-360 for all historic and prehistoric sites which may be eligible for the National Register of Historic Places. These sites may be considered individually, as a district or any combination thereof. The level of documentation required for the nomination forms is outlined in the Federal Register, Vol. 43, No. 183, Wednesday, September 21, 1977.

Include a statement whether any, and which, sites of previously identified prehistoric or historic significance designated by federal, state, or local Government will be affected.

Provide for each located cultural resource scaled, detailed maps showing site composition, extent, presence of midden, and artifact sites features such as bedrock mortar outcrops, petroglyphs, historic structures, existing impacts to sites, and the relationship of sites to nearby roads, trails, trees, and other topographic features. Mapping shall be done with surveying instruments--such as metric tape and compass--and shall be of good quality. Details of other features such as bedrock mortars, petroglyphs, or historic structures, shall be fully described and illustrated by photographs (with scale) and line drawings. Separate appropriate feature records for each shall be prepared.

Provide fully completed site survey records for all cultural resources located and prepare a map showing all cultural resources in the project area.

At least three locations for each midden site shall be sampled so that midden depth, composition and other information useful in determining possible eligibility to the National Register of Historic Places can be defined. The location of these borings shall be shown on site maps. Findings shall be described in an appendix. Information pertinent to National Register evaluation shall be discussed in the main report in the section on "Evaluation of Eligibility to the National Register of Historic Places."

Suggest protective and/or mitigative alternatives for each site. For each site identify the alternative which appears to be most feasible and discuss the basis for the decision.

Prepare time and cost estimates for accomplishing the mitigative

and/or protective work. Sufficient detail shall be provided to enable Government review of labor efforts for field and laboratory work, possible special analyses, and other expenditures. The above information shall be provided for each site.

Surface artifactual materials discovered during the course of the survey will not be collected. Any culturally or temporally diagnostic artifacts which are: (a) seen in the field but left at the cultural site, or (b) obtained from auger borings, etc., will be phtographically recorded.

Identify those sites which should be test excavated (in addition to the three auger samples) in order to determine their significance. Suggest the amount of testing, in terms of 1 by 1 meter excavations units, and describe what variables were used to arrive at that quantity for each site. Prepare a cost estimate for such an effort.

BACKGROUND

Clewlow (1976) surveyed approximately 17.7 percent of the project area in 1975, mainly along Canal Creek and its tributaries, as a portion of the Merced County Streams project. (Two areal percentages were presented, 17.7 percent and 20.4 percent, but 17.7 percent is the better estimate.) He did not find any resources.

ENVIRONMENTAL SETTING

General Environmental Setting

Although one physiographic region, the San Joaquin Valley, displays a diversified environmental pattern: arid foothills on the west, swampy valley floor, gently rolling eastern alluvial plains, and the oak parklands of the lower Sierran foothills. In terms of prehistoric land use, the restrictions or advantages of each area are reflected by the known settlement pattern.

Geologically, the Central Valley is a great geosynclinal trough which has existed from Teritary times (Hinds 1952). Bounded on the east by the Sierra Nevada massif and on the east by the Coast Ranges, the trough follows a northwest-southeast axis reflecting the strike of the Sierra and Coast Ranges. The southern boundary of the valley is formed by the Tehachapi Range, while the Cascades and the Klamath Ranges rim the northern extent. The San Joaquin Valley is, in part, drained by the San Joaquin River, which flows west from the Sierra, bends sharply north at Mendota, and trends northwest to empty into the maze of sloughs and marshes of the Central Valley Delta into the Pacific Ocean. The southern end of the San Joaquin Valley is not drained by the San Joaquin River. The area extending from the Kings River to the base of the Tehachapis has no surface outlet under normal

conditions of runoff and rainfall. Drainage is into a series of now extinct or controlled playas. The valley floor is a long alluvial plain, gently uplifting to dissected fans derived from deposition by the degrading streams of the surrounding mountain ranges. Soils within the valley are generally devoid of natural rock constituents as the coarser materials tend to drop near the head of the fans, leaving the finer silts which carry further out into the valley.

The San Joaquin Valley lies in the rain shadow of the Coast Ranges, which effectively blocks much of the available moisture. Storms are diverted over the region to deposit their water content on the higher Sierra to the east. As a consequence, the area suffers from a deficient rainfall. The chronic pattern of aridity, apparently one of long standing, is marked on the west side where few streams of perennial flow are established. Runoff from the infrequent storms is rapid and water disappears within a short period of time. In contrast, the east side, recipient of the captured rainfall and benefiting from stream flow headquartering in the large catchment basins of the upper Sierra ranges, contains numerous perennial rivers and streams. Erosion is more vigorous, a result of the high annual rainfall, and alluvial fans stretch westward out into the trough. The inequitable runoff has resulted in uneven deposition of sediments with the gradual movement of the axis of drainage far to the west.

The aridity of the west was reflected by the restricted vegetation growth. Arboreal communities were restricted to canyons of perennial streams, with sparse grass cover and some low-growing brush over the hill slopes and fans. The east side, with a correspondingly higher precipitation, had a different vegetative pattern. Oak groves, where adequate water was available, extended out onto the valley floor. Stream channels, sloughs, and lake shores were fringed by cottonwoods, willow, and sycamore. The stretches between stream courses, beyond the percolation limits of ground water, were open grasslands. The low-lying valley trough, with sluggish streams near to grade, supported vast tule marshes and ponds with dense arboreal stands along rivers and streams.

The faunal communities of each environmental zone had a wide range in both variety and number. Waterfowl, attracted by the large, open waterways, swarmed around the ponds and sloughs. Fish, shellfish, and turtles were abundant, while small mammals and larger game were plentiful in marshlands and on the open plains. In all, the San Joaquin Valley provided a rich resource base for the prehistoric population.

Site Specific Environmental Setting

The dam site is located across Canal Creek between low, rounded hills of the Early Pleistocene Age/Turlock Lake Formation (U.S. Army Corps of Engineers 1981:46). This is a fan deposit of predominately granitic alluvium described as stratefied layers

of sandy clay, sandy silt, and silty sand. The axis of the dam crosses cultivated land on the west side, while the east abutment is in rangeland. The lower portion of the reservoir lies in a small valley between low undulating hills, probably of the same Turlock Lake Formation. The grassy, rounded hills form a low relief with the highest elevation below 300 feet. Upstream, near where Canal Creek bends to the east, there is intense agricultural use of the land. Orchards, pastures, and row crops cover leveled land. Canal Creek is bounded on the south by the eroded bluffs of the low hills. The land north of the creek is predominately in pasture or corn as this area is a dairy center.

There has been extensive alteration of the natural landscape. (With the exception of the lower reservoir area.) The channel and lower slopes south of Shaw Avenue are in a nearly natural state, although introduced grasses have replaces the native plants. This area is primarily used for grazing.

The west side of the Great Valley is covered by perennial grassland which differed from other prairies of the world both in regard to the perennial species present and the large number of annuals. Bunchgrass was the dominant grass type throughout the Great Valley. It was associated with many other species of grass, sedges, and flowering plants, depending upon the local ecotone. The two important edaphic habitats within the grasslands are the alkaline flat community and "hogwallow" or vernal pool community. The alkaline flat community covered large areas of the valley, and Moraga describes how arid it is during the late summer when his expedition passed through the project area in 1804 (Cook 1960:284). The vernal pool community is present on the east side of the valley wherever grasslands are underlain by hardpan, which created pools in the winter. These pools are characterized by an unusual ecotone where a vernal flora has evolved (Western Ecological Services Company 1981).

Archeological Background

Fredrickson (1973), as part of his dissertation research on the Coast Ranges, proposed a new chronological scheme for the prehistoric settlement of California. While the majority of his results are not directly applicable to the Sierran foothills province, his revision of the terminology for major temporal units is useful.

The establishment of a chronological framework is a necessary step in which to discuss the cultural events evident from the analysis of the archeological record and other sources.

Fredrickson (1973:116) recognizes two levels of conceptual categories--i.e., time and archeological entities. Of immediate import to the present report are his temporal units called periods. The dating of them will probably need revision from time to time, probably by region, since cultural developments often proceed in a mosaic fashion. His periods are named for the dominant

stage, the socioeconomic level of development. This does not imply that all archeological entities found within one period will be characterized by the same level of socioeconomic development. The periods recognized are the Early Lithic, the Paleo-Indian, the Archaic, which is divided into two sub-periods (Lower and Upper), and the Emergent, also divided into two sub-periods. Their correspondence with the older cultural chronology can be seen in Figure 1.

FIGURE 1

Cultural Chronology

Upper Emergent	A.D. 1500--A.D. 1750	Phase 2, Late Horizon
Lower Emergent	A.D. 300--A.D. 1500	Phase 1, Late Horizon
Upper Archaic	2000 B.C.--A.D. 300	Middle Horizon Intermediate cultures
Lower Archaic	6000 B.C.--2000 B.C.	Early Horizon Early San Francisco Bay Early Milling Stone Culture
Paleo-Indian Early Lithic	10,000 B.C.+	

The previous work in the project vicinity has consisted of cultural resource surveys, and none has produced any temporally diagnostic artifacts. The assessment of the archeological resources, except historic resources, still lacks accurate dating. It is believed that most represent the Upper Emergent, or the archeological manifestations of the ethnographic peoples who inhabited the area at the time of contact.

The archeological patterns characteristic of this region have not been adequately defined as yet. The most appropriate available study is for Buchanan Reservoir in Madera and Mariposa counties (Moratto 1972) and it still provides one of the more important comparative studies for resources located on the east side of the San Joaquin Valley and the lower foothills.

The Madera Phase of Moratto's scheme is in the Upper Emergent Period. The Lower Emergent is represented by the Raymond Phase and the Upper Archaic by the Chowchilla Phase. All have been well described in the literature and need not be presented here. The interested reader is referred to Moratto's (1972) dissertation. Moratto believes the Madera Phase represents the Miwok, although Peak (1976), based upon her later investigations at Buchanan, considers Miwok may not be appropriate.

The phases represented at nearby Hensley Lake (Fenenga 1977) have not been fully published or otherwise reported. As this is the closest other areal survey of a similar comparable zone occupied in the recent past by Yokut groups, it is regrettable that it is not available for comparative study.

In the west side of the San Joaquin, Olsen and Payen (1969) and Pritchard (1966) have defined another cultural chronology comparable in age to that formulated for Buchanan. The interested reader is referred to Olsen and Payen (1969:29) for details. Below are the believed correlations with Fredrickson's chronology:

FIGURE 2

Concordance of Cultural Chronologies

Upper Emergent	Panoche Complex
Lower Emergent	Gonzaga Complex
Upper Archaic	Pacheco A?
Lower Archaic	Pacheco B, Positas Complexes?

It is difficult at this time to evaluate the comparability of any of the above proposed chronologies with the known evidence from the project region. As mentioned earlier, the only archeological work undertaken was a cultural resource survey and it was negative. The resources found in the proposed nearby reservoir project area--Burns and Bear reservoirs--were found by surveys, and do not offer comparative data to construct a real cultural chronology.

Ethnographic Background. The proposed Castle Reservoir is located in the territory usually assigned to the Northern Valley Yokuts (Wallace 1978:462). The Yokuts are part of the large Penutian family of languages. The language had many dialects, but all were remarkable homogenous (Silverstein 1978:446) due to a presumed recent intrusion and expansion. It is not really known which dialectical tribe inhabited the project area, but the Coconoon appear the most likely (Map 2).

The Yokuts lived primarily along the San Joaquin River and its tributaries within the valley. The settlements were set upon mounds near the large watercourses due to the seasonal flooding of the region during the winter and spring. The structures were recorded as oval-shaped and made of tules. They have been excavated archeologically and proved to have had hard impacted clay floors, with a wooden framework to which tule mats were attached (Wallace 1978:465). The structures were recorded as "scattered about," with no particular arrangement, and most seem to have been individual family structures. Sweathouses and ceremonial structures were also present, and one of the latter has been excavated (Pritchard 1966).

Subsistence was strongly oriented toward riverine and riparian resources, with salmon and other fish prominent parts of the subsistence base. The known abundance of water-fowl suggests fowling also must have played a major part in the subsistence round but, as Wallace (1978) notes, it is not mentioned or recorded by the early Spanish visitors. The archeological evidence for fowling is still equivocal, probably due to insufficient study. Big

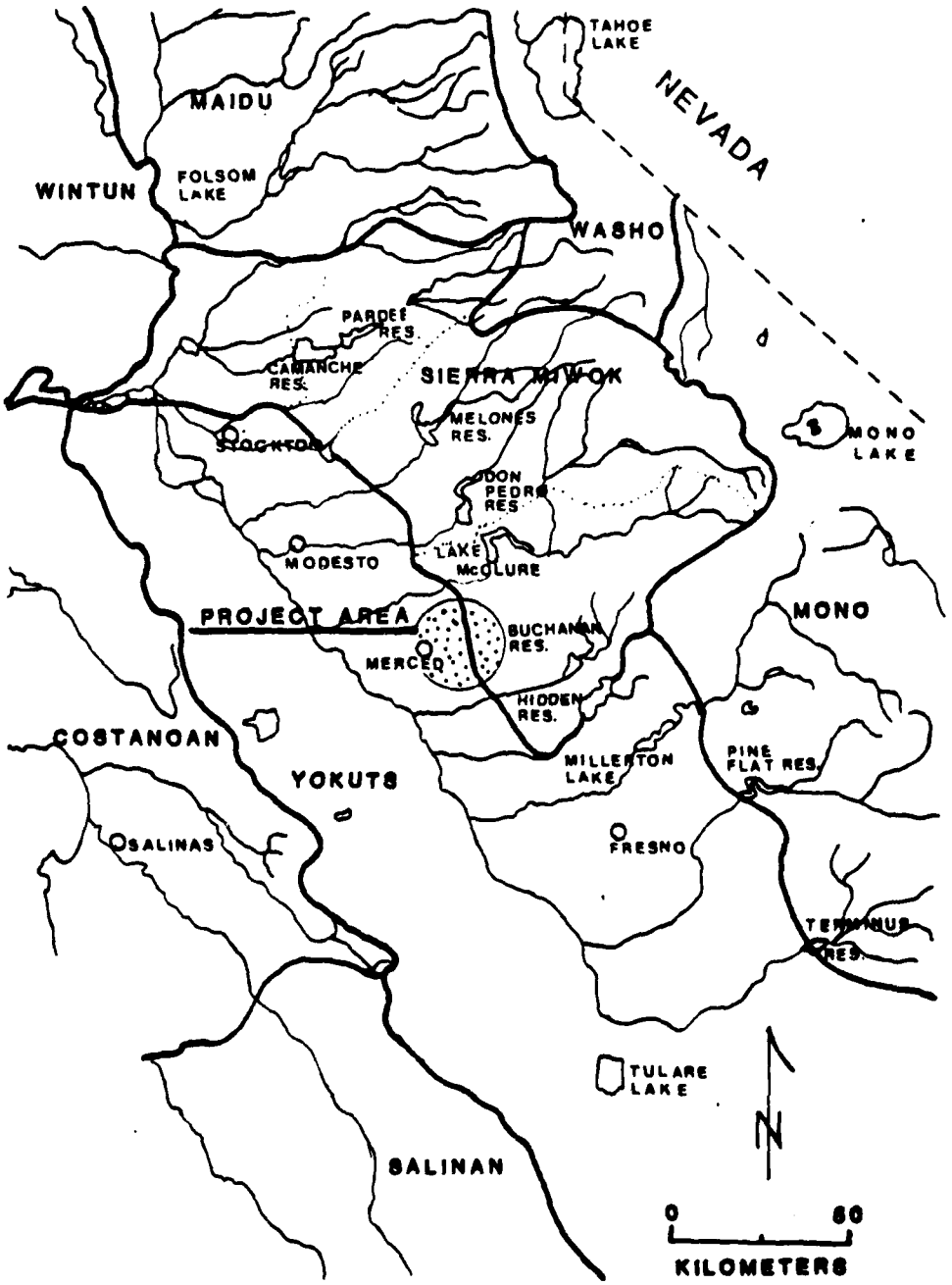
game hunting is believed to have been only a marginal subsistence pursuit. The exploitation of the plant food resources, particularly acorns, probably formed the major food based, as with most hunters and gatherers--another problem which will require appropriate archeological investigation.

There is little evidence on the social organization, although it is assumed to have been based upon the family. Each tribe lived primarily in one village, with probable smaller villages or special activity areas nearby. The chief or headman lived in the primary village and the ceremonial structure was there also. There was some fragmentation of the tribe seasonally to exploit localized plant resources, but some people always lived in the major village (Cook 1960). Wallace (1978) has suggested that the presence of the large ceremonial structures indicates the Northern Valley Yokuts were involved with the Kuksu Cult, which required such structures for this practice. Supportive archeological evidence for this assertion is weak.

Linguistic Prehistory. Moratto and Riley (1980) presented a hypothetical model of California linguistic prehistory in their research at Balsam Meadow in the Sierra National Forest. The points of the model which need to be emphasized in this study are: (1) California was inhabited primarily by Hokan speakers between 10,000 and 6,000 B.C. The Western Pluvial Lake Tradition (Bedwell 1973) would represent these ancient Hokan populations. (2) Between 1,500 and 100 B.C. there was a movement of Yokutsan groups into the valley and Sierran foothills from the Delta. The Windmiller Pattern and the Crane Flat in the Sierra are seen by Moratto to represent this expansion. Pacheco A and B (Olsen and Payen 1969), on the west side of the San Joaquin Valley, may represent another part of this expansion. They will also be present in the foothills by 0 A.D./B.C. as far south as the Fresno River. Moratto sees this later movement as the Chowchilla Phase. (3) The Eastern Miwok (Levy 1978), including the Plains Miwok, diverged from the Coastal Miwok around the time of Christ. The Sierra Miwok quickly moved south, displacing the earlier Yokuts groups (Moratto's Madera Phase and perhaps the Late Raymond). In Yosemite, the Mariposa phases represent the Miwok. Yokutsan groups are archeologically manifested by large projectile points and a mano/metate system for milling, while the later complexes are distinguished by light projectile points, use of bow and arrow, bedrock mortars, and cobble pestles. Steatite vessels and clamshell disk beads (Moratto and Riley 1980:26) are also part of this late Miwokian repertoire.

The expansion of the Sierra Miwok along the foothills, and the northwestward movement of the Monache, are believed to have forced the Yokuts into the Upper San Joaquin Valley from the south in the recent period (Wallace 1978). How this proposed late northward movement articulates with other earlier presumed Yokut movements, such as the Meganos (Bennyhoff 1968), remains to be established.

DRAINAGES AND ETHNOGRAPHIC TERRITORIES OF THE PROJECT VICINITY



Base map adapted from Moratto 1972, Map II.

MAP 2

Moratto's estimate of the correlation between linguistic events and the archeological record is predicated upon inferred similarity in dating. Some caution obviously should be exercised in assuming such correlations between such disparate entities.

Historic Background. The area of the proposed Castle Reservoir was occupied in the protohistoric period by the Northern Valley Yokuts prior to the European influx. The tribal grouping was likely the Coconoon Yokuts. For reasons as yet unknown, the Yokuts were known to have left the area prior to 1846.

The Castle Reservoir area was originally owned in the early 1880s by the Crocker Hoffman Land and Water Company, with a small portion owned by J. W. Mitchell, a large landowner in the valley. Two subdivisions, the Merced River Tract and the Liberty Colony Tract, were created in the general area in the early 1900s. Two railroads ran immediately to the east, but both have now been torn up.

The area in general is agricultural, with diverse crops and cattle range.

Research Design. The conceptual basis for the research design proposed by Peak & Associates for the Intensive Cultural Resources Survey and Evaluation for the proposed Castle Reservoir, Merced County Streams project, is presented below.

Research designs are conventionally regarded as structured by three hierarchical levels. The highest order level (Level 1) is the theoretical premise or paradigm upon which the research design is based. The most popular paradigm today is cultural materialism, which simply asserts that human behavior, at least in a statistical sense, is based upon economic decision-making. This forms the basis underlying our research design. The use of the concept that people make rational economic decisions supplies a causal factor missing in the use of Systems Theory as the conceptual basis (Clewlow 1976).

The second hierarchical level (Level 2) within a research design postulates a set of orderly questions about general human behavior, structured in terms of the assumptions of the first-level paradigms and how those questions can be methodologically addressed. This level identifies the kinds of research concerns which can be explored, given the constraints of the project and the nature of the data. Moratto (1981) and Fowler and James (1981) refer to this level as Research Domains.

The lowest level of a research design (Level 3) is the implementation of the design for the particular project--the research strategy. It consists of the specific research questions to be considered and how they will be addressed by the data recovery techniques, including research and interviews, as well as direct field inspection.

The very limited kinds of data available from a cultural resource survey, as opposed to excavation, limit the research concerns or domains (Level 2) and/or questions (Level 3) which can be confronted. Thus, the major function of a cultural resource survey is to identify the kinds of resources present and how they might potentially contribute to the exploration of higher-order research concerns and/or particular research questions.

The archeological research concerns can be generally divided into four areas: (1) cultural change, (2) subsistence and settlement, (3) cultural and social interactions, and (4) paleo-demography. Numerous research questions can be generated from any of these research concerns. Below are presented a number of examples generally selected to reflect those questions which can profitably be addressed by investigations in this region.

Research Question 1.--If indeed, as Moratto believes, the Yokuts preceded the Miwok in the foothills, then two settlements systems may have been operative. First, if the populations of the valley and foothills were resident in either territory, then the permanent village with its subsidiary hamlets should be archeologically perceivable prior to the Upper Emergent. In other words, sites with earlier components should be in the same locale as the later components, and the respective artifact inventories should appear similar although varying in particular detail.

If the settlement systems were different in the earlier period--e.g., the Yokuts practice transhumance from sites located westward along the San Joaquin River--then the settlement system in the project area will appear incomplete. Seasonality studies will reveal gaps in the yearly cycle. Certain artifact types may be scarce, or absent, if the resources associated with their use were distant. A thorough study of the resource potential of the environment would reveal a lack of carrying capacity for a year-round subsistence cycle for a hunting and gathering society.

Research Question 2.--Moratto et al. (1978) have postulated that there was an arid interval between A.D. 700 and A.D. 1,200 which severely affected and disrupted the social, economic, and demographic relations and structures at that time. Large nucleated villages of a permanent character were replaced by smaller villages of much less permanence. If so, then sites with Eastgate Expanding Stem and Rose Spring Series points will be absent or scarce and confined only to small camps of transitory nature. If not true, then such sites should not reveal any sudden disruption of the settlement system. Although changes may take place, they may be distributed over a longer period than that postulated by Moratto et al. (1978). These changes may not be correlated with the proposed arid interval to any significant degree. The finding of temporally diagnostic forms will be important in addressing this research questions, as well as observations on site size, artifact density, associated facilities, etc.

The major argument is not whether any arid intervals may have occurred in the last 2,000 years but, rather, to what extent they affected human occupation. If the evidence from the work on the west side of the San Joaquin has any significance, the effects of the postulated arid interval may have had a mosaic rather than a general effect (see Olsen and Payen 1969; Pritchard 1966). Any evidence, pro or con, for the settlement of this part of the valley during that period will be a plus.

Research Question 3.--Ericson (1977) has postulated that the Sierran quarries were not systematically exploited after A.D. 500. These quarries apparently supplied most of the obsidian upon which the bifaces in the Central Valley, during the period prior to A.D. 500, were created (Jackson 1974). The quarries were not abandoned, of course, but the extensive quarry operations ceased and local peoples simply picked through the old debris. In the summer, when they moved into the Sierra, they traded it to other peoples in the foothills. Gayton (1948), for example, records that the Mono traded unfinished obsidian blades to the Yokuts.

If Ericson is correct, the sites with artifacts diagnostic of the period prior to A.D. 500 should reveal evidence of biface importation--i.e., either bifaces or large bifacial thinning flakes (BTFs) struck from them. Later occupations will demonstrate much smaller BTFs and, when sourced, they may not be from Sierran quarries.

Research Question 4.--Clewlow hypothesized that Castle Reservoir had no sites in the areas surveyed because it was a "buffer" or boundary territory between the Yokuts and the Miwok. This hypothesis has a few weaknesses since sites have been found in the reservoir; moreover, Castle Reservoir is solidly within the territory ascribed to the Yokuts. Further, such buffer zones, while not occupied by villages, are certainly occupied by seasonal and/or activity-specific task groups. Burns Reservoir, to judge by the established boundaries, is more likely to be a "buffer zone."

If the Castle Reservoir area is a boundary territory between two hostile groups, sites will be small and placed inconspicuously to avoid detection (Hickerson 1965). Artifacts indicative of warfare (spear points rather than arrow points?) may be present, and no domestic tools (e.g., manos, metates, pestles, bedrock mortars) will be apparent.

If the absence of sites is real, as Clewlow believed, and not a matter of the field techniques needed to discern them (e.g., heavy grass cover overlying sedimentary layers), then the factors which precluded settlement in the area should be recognized. These factors can be many and varied, but include: lack of resources, lack of available water, lack of lithic raw material sources, and lack of suitable combinations of factors for

settlements--i.e., two or more of the above are lacking. Even given post-European disturbances to the environment, these kinds of changes should be evident and some characterization of the pre-contact environment possible. If, indeed, there are not sites, aridity no doubt played a major role and water resources will have to be carefully examined.

Research Question 5.--As is clear from Clewlow's (1976) brief summation of the Yokuts literature and the appendices more comprehensive survey, the settlement system practiced by the Yokuts in the ethnographic past is relatively unknown. The presence of the Miwok to the east would obviously preclude any transhumance into the Sierra except prior to the postulated movement of the Miwok into those areas. The Yokuts on the east side would have to exploit the resources in the Central Valley and the adjacent lower hills. The region was described by the Spanish as extremely rich in game and resources, so a stable subsistence base was eminently practical. We postulate that the Yokuts groups maintained permanent villages, organized around a sub-tribe affiliation, which were socio-politically related to other villages within the dialectical tribal territory. Those villages were surrounded by subsidiary hamlets. Wallace (1978) notes the village plan of the Northern Valley Yokuts was not so organized (rigid?) as that of the Yokuts groups to the south. Archeologically, a large site wil be surrounded by smaller sites which have a tool industry indicative of a range of tasks--i.e., the hamlets will have an industry similar to that of the villages but in less quantity. Special-purpose sites will have more specialized industry with fewer tool types. The pattern should differ from that of earlier periods.

At Castle Reservoir, large sites will be located on knolls overlooking a watercourse sufficiently high that seasonal flood waters would not submerge them. Smaller hamlets will also be found on knolls, but their remains will be much smaller and the knolls will likely be smaller also. Sites with a specialized artifact assemblage may be found on topographic features other than knolls.

Castle Reservoir lies near the boundary of Yokuts and Miwok. If the Yokuts occupied the area, large sites will be surrounded by smaller sites, but an intensive analysis will not recover any evidence of transhumance.

If the area was Miwok, then some evidence of transhumance will be present. If Yokuts, the artifact inventory should conform to Bennyhoff's Stockton District or to Olsen and Payen's (1969) Panoche Complex. If Miwok, the Madera Phase is probably the most likely archeological manifestation (Moratto 1972). The Mariposa Complex would seem to be primarily indicative of the Yosemite region.

Research Question 6.--The Yokuts are believed by Wallace to be late immigrants into the northern San Joaquin Valley from the

south. If so, then archeological time indicators will demonstrate only Emergent Period, if ony only Upper Emergent Period, artifacts. There may be earlier occupations, but they will not demonstrate any "transform states"--i.e., from Yokut to the earlier archeological cultures. There may even be a demonstrated gap in the occupation of the northern San Joaquin Valley for the period preceding 1500 or 1600 A.D.

Research Question 7.--The subsistence base for the Yokuts proposed by Wallace indicates little emphasis was based upon exploiting the game animals which fringed the valley floor. The major focal points of the subsistence round of the Yokut, as proposed by Wallace based upon Latta's (1949) earlier work, are fishing, fowling, and plant food gathering. In these contexts, the archeological evidence will demonstrate a negative association with points and arelative lack of debitage associated with their manufacture and maintenance but a positive correlation with harpoons and net sinkers.

Other research questions, based upon research domains such as demography, are possible but, given the limitations of a cultural resource survey, they cannot easily be addressed. The list presented is by no means regarded as inclusive, as new insights will undoubtedly generate others and others will be generated from a closer scrutiny of the one presented.

SURVEY METHODOLOGY

The cultural resource survey of the project area for the Merced County Streams project was an intensive survey designed to locate all cultural resources, regardless of size or significance. The major purpose of the cultural resource survey is to supply the U.S. Army Corps of Engineers with sufficient information and documentation to permit viable management planning for the resources within the project area.

As a part of the background research, pertinent literature was reviewed as well as the reports on previous surveys conducted for the Merced County Streams project (Mohr 1951; Clewlow 1976; Wilson 1978). No site specific record search was requested for the reservoirs, since the records on identified cultural resources within the project areas wss provided by the U.S. Army Corps of Engineers. Maps and files were examined at the Office of Historic Preservation for information on archeological sites which are in areas adjacent to the study area. A zone from 125 feet to 800 feet and extending north of the Merced River from Owens Reservoir was delineated, since sites within that belt would be topographically and environmentally comparable to the study areas.

As expected, few sites have been recorded within this zone beyond those identified by Clewlow's 1976 surveys. Joe L. Pope

(personal communication 1982) stated that no systematic surveys have been conducted in this region which may account for the low number of recorded resources. It is certain that sites of all types occur within this zone, but to date have not been recognized and recorded.

Excluding all sites which have been identified in the present study area reservoirs and those at Owens, Marguerite, and Mariposa reservoirs (Clewlow 1976), there are four petroglyph sites within the selected zone of record review. The three other known sites in this zone appear to be habitation sites. Of these sites, CA-Mer-214 is geographically closely related, but it is situated downstream from Bear Reservoir. The site record suggests that this site was probably a large village, as over two hundred bedrock mortar pits and two possible housepit depressions were noted.

The surveys at Owens, Marguerite, and Mariposa reservoirs were designed to sample the project areas and were not intensive in nature (Clewlow 1976). Sites recorded at Owens Reservoir include six bedrock mortar loci and one historic foundation. At Marguerite Reservoir, an historic foundation and an isolated metate were the only resources found. At Mariposa Reservoir, there are seven historic and nine prehistoric sites, of which one is midden/bedrock mortar site, and eight are bedrock mortar loci. The seven historic remains include mud mortar and slab foundations and chimneys probable related to the early mining era (Clewlow 1976). There is little comparative information since the site record forms do not contain details of construction mode nor any illustrations of the historic features.

It is difficult to determine what prehistoric settlement system is present, since the surveys were incomplete. More prehistoric sites may be found in these reservoirs should an intensive survey be conducted, and a system or pattern might be defined.

An examination of the National Register of Historic Places and the monthly supplements revealed that no sites on or found eligible for the Register are located in or within the immediate vicinity of the project area.

The project area was surveyed by 10- to 15-meter transects, depending on the terrain. Known locations of previously recorded sites were examined carefully. Coverage rate was predicated on 30 acres a day per person.

When a resource was encountered, the team gathered together and helped in its recordation. Scaled maps were prepared for all sites with a compass and tape, or a transit and stadia rod if the situation warranted. The surface was carefully examined for artifacts and those noted were flagged. All artifacts found were then plotted on the map. Only temporally diagnostic artifacts were noted and illustrated. Boundaries were established by how far the lithic scatter extended.

All sites were augered to determine if any subsurface cultural deposits were present. A cultural deposit is defined as an artifact bearing soil, not necessarily an organic midden. The auger holes were excavated with an auger if possible, or with a shovel if the soil proved to be rocky. The excavated soil was carefully examined for artifacts, but not screened. All holes were backfilled. The auger test holes were excavated to sterile soil or as far as the auger or shovel could effectively reach.

The sites were photographed in the environmental setting in black and white. All features and other pertinent artifacts were also photographed.

The field crew consisted of 11 to 12 professionals organized into three teams of two or three people, each under one crew chief. The field director was in charge of one crew, but also supervised and delegated the daily tasks to the crew chiefs.

The resources were recorded on the approved site survey forms, and their location was plotted on both the appropriate USGS quadrangles and the U.S. Army Corps of Engineers design maps of the appropriate proposed reservoir. The isolated artifacts found were plotted by the crew on their field maps. At the end of the day the crew chief plotted them on his/her map and these data were then conveyed to the field director. A series of symbols was devised to represent the types of artifacts found as well as their context.

The prehistoric sites were classified according to the presence/absence of the following elements: bedrock mortar loci, midden, petroglyphs, and housepits. The historic elements recognized were buildings/foundations, walls, fences, recent trash, and mining operations.

In the prehistoric classification, bedrock mortars, midden, or petroglyphs can be a site or an element of a site. Housepits are usually an element associated with middens. A site with three or more elements is a complex site. A prehistoric site with an historic component will usually be regarded as a complex site, but not in all cases--especially if one other element, such as a small disturbed midden, is only weakly represented.

SURVEY FINDINGS

Four cultural resources, all lithic scatters, were found during the survey of Castle Reservoir (Table 1). The artifacts consisted of very sparse collections of silicate flakes, fire-cracked rock, some possible ground stone such as bowl mortar fragments, a scraper, and a silicate core (CA-Mer-259). An unique small acorn anvil was found on CA-Mer-257. CA-Mer-259 and -254 were not augered, since both offered cut banks of some depth which could be examined. The results in all cases were

negative, as there was no observable distinction between the soil in the upper and lower levels. Some modern trash was associated with the lithic scatter at CA-Mer-254. The site CA-Mer-259 is situated on an artificially leveled terrace used for flood plain farming. An examination of the terrace scarp indicates that over 20 feet of deposits were excavated during the leveling procedure for the terrace. The southwest side of the terrace escarpment revealed a few artifacts are found to a meter and a half in depth. A careful examination of the adjacent property to the west did not reveal any artifacts, and one presumes the sites does not extend in that direction. Artifacts found on the surface of CA-Mer-259 are obviously in a derived context, and one must assume that most, if not all, of the site has been destroyed. The depth of the exposed section precluded the need for augering. As well, the only possible extant section of the site is part of a farm road which would be adversely affected by augering. The lack of any observable soil development suggests that the roadway may also be disturbed fill (Map 3). CA-Mer-254 is cut by a road, and the profile revealed there was no subsurface cultural deposits. In this situation, augering was not necessary.

In short, the very sparse scatters of artifacts, which comprise all of the resources encountered, suggest only short-term periodic occupations, probably of a seasonal character. None would qualify as a midden, and the only one with some apparent "subsurface" cultural materials may be in a bedly disturbed context.

TABLE 1

List of Resources

Site	Type	Size m^2	Location	Elevation
CA-Mer-254	Lithic scatter	150	Reservoir	185 feet
CA-Mer-257	Lithic scatter	1,125	Reservoir	205 feet
CA-Mer-258	Lithic scatter	300	Reservoir	205 feet
CA-Mer-259	Lithic scatter	6,000	Reservoir	195 feet

IMPACTS

Introduction

Borrow areas.--The other major impact to resources in the proposed reservoir area will be due to the construction of the dam itself. This includes the construction activities associated with preparing the access roads, the base of the dam, and the spillway. These features of the dam construction are comparatively limited areal extent and, except for sites which are located where a structure is planned, effects will be minimal. The dam, however, is to be of earthfill construction. The borrow areas from which the construction materials are to be drawn are

within the confines of the proposed reservoir. The raw material to build the dam will be derived by bulldozing or stripping off desirable raw materials over a comparatively large areal extent.

Inundation.--The damage to cultural resources, due to fresh water flooding, has been of concern for a long time, but it became a major topic in the 1970s. In particular, the National Park Service has undertaken research on this topic under the Reservoir Inundation Studies project (Carrell et al. 1976; Lenihan et al. 1977), and other projects have been undertaken within the same guidelines (Padgett 1978).

The major impacts can be divided into chemical and mechanical impacts. The chemical effects on the soil constituents and the various artifactual categories facilities and ecofacts are primarily due to immersion and its consequences. The short-term periodicity of the flood water levels in Castle Reservoir would likely have lessened the chemical impact of inundation.

The mechanical effects are primarily due to the wave action zone, which erodes the soil in the porcess of cutting benches. Other mechanical impacts of less importance in the project area are "freeze-thaw, liquefaction, desiccation alternating with inundation, and siltation" (Carrell et al. 1976:19). Again, the short periods of inundation would preclude much damage due to these other factors, except perhaps for the effects of the alteration of wetting and drying dur to inundation. Moreover, the effects of these other factors are less well known than the impacts of wave action since the results are not so observable, particularly in ungated dams of the sort used for flood control.

Impacts

Borrow areas.--There are no resources within the proposed borrow areas, so no impact is foreseen from the construction of the dam.

Inundation.--The proposed gross pool of Castle Dam is composed of the lowlying terrain under 210.8, all of which borders Canal Creek. The height of the dam will be 52.5 feet (U.S. Army Corps of Engineers 1981:vii) which makes this the lowest of the dams proposed for the Merced County Streams project. The drainage area is only 28.2 square miles and the reservoir will be relatively shallow. There are no estimates of probabilities for inundation levels or particular elevations within the proposed Castle Reservoir. It can be logically stated that the lower a site is situated within the pool of the reservoir, the more frequently it will be inundated.

For the purposes of projecting the degree of impacts, the pool will be divided into two elevation zones: above and below 200 feet. The division of the pool into the two zones is purely

arbitrary, but it is a logical distinction, since the lower a site is found, the more frequently it will be inundated and thus impacted (Map 4).

CA-Mer-254 and -259 are both located below 200 feet in elevation and they can expect comparatively more impacts than those above. CA-Mer-254 is a very sparse lithic scatter. The sole impacts will be due to artifact movement caused by wave action. The site is close enough to the banks of Canal Creek to indicate some artifact movement due to sporadic seasonal flooding has likely already occurred.

At CA-Mer-259, the low-lying terrace upon which the artifacts were found, was constructed by a massive excavation. The sum of the evidence indicates that the site has likely been completely destroyed and that the few artifacts found are in a derived context. No further impacts are possible as the site is effectively destroyed.

CA-Mer-257, above 200 feet, is a surface scatter only; thus, the impacts to it will consist of artifact movement due to wave action. One of the few artifacts observed was found on the downward slope to the terrace below, and it was already out of context. The site is situated on the boundary of the gross pool; thus, potential impacts due to inundation will be slight.

CA-Mer-254 is also situated on the gross pool boundary. It is a very sparse scatter of a few pieces of debitage and one mano. The sole impact foreseen is artifact movement due to wave action. Only minimal impacts are foreseen in this situation.

EVALUATION OF ELIGIBILITY TO THE NATIONAL REGISTER

The criteria for evaluating potential entries to the National Register of Historic Places depend upon the assessment of their "quality of significance" (National Park Service 1977). These potential entries must possess integrity of location, design, setting, materials, workmanship, feeling, and association. In addition, they must be associated with one or more of the following criteria:

1. They are "associated with events that have made a significant contribution to the broad patterns of our history."

2. They are "associated with the lives of significant persons in our past."

3. They "embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that represent a significant and distinguishable entity whose components may lack individual distinction."

4. They "have yielded, or may be likely to yield, information important in prehistory or history."

The assessment of the significance of these sites will be based upon the criteria. As the majority are prehistoric resources, the last criterion will be used to judge their significance.

The significance of a resource, especially in the context of the informational limits of a cultural resource survey (in contradistinction to archeological excavation and analysis) is based upon the potential of the resource to address the pertinent research questions for a locale as well as those of general anthropological or historical interest. The research design presented by Peak & Associates, and the results of the further investigations by the ethnohistorian and historian, will form the basis for evaluating the significance of the resources.

The project area has been surveyed only once, with negative results, so comparative data are nonexistent. Moreover, the archeological background section indicates there is not established cultural chronology yet established for this portion of the foothills and the San Joaquin Valley.

In assessing the eligibility of sparse lithic scatters to the National Register, such as CA-Mer-254, -257, and -258, their potential contribution to addressing inportant research must be examined. Obviously, a complete understanding of the subsistence base and settlement system for any particular period depends upon understanding how resources were exploited. While only sparse lithic scatters, the above resources do represent some activity set and/or loci, and thus form part of a settlement system. However, after the examination of the site surface and a listing of the artifacts found, it is debatable what further information important to prehistory will be forthcoming. Moreover, it is likely that scattered artifacts, such as those found, are present above many portions of Canal Creek, but are so sparsely distributed and are difficult to find.

In short, we do not believe the above three sites have sufficient importance to merit nomination to the National Register since their information yield would be minimal.

The site CA-Mer-259, which may have once had cultural deposits, has been effectively destroyed and does not merit nomination to the National Register as its information yield can be considered small.

MITIGATION/PRESERVATION ALTERNATIVES

The erosive effects of long-term inundation on cultural resources are well established by the studies undertaken by the National Park Service (Lenihan et al. 1977). However, the effects

TABLE 2

Recommendations For Nomination

Site	Type	Condition	Research Potential	No Further Research	Recommended for National Register
CA-Mer-254	L	Fair	Low	X	No
CA-Mer-257	L	Fair	Low	X	No
CA-Mer-258	L	Fair	Low	X	No
CA-Mer-259	L	Destroyed	Low	X	No

on resources in the periodic flood pools of ungated flood water dams have not been studied, as far as we know--especially the long-term effects.

The impact zones within gross pool have been arbitrarily divided into two elevational zones, with different degrees of expected impacts. The 200-foot elevation was chosen as the dividing point since impacts above that level will occur only very infrequently. There are no probability estimates of inundation levels formulated for this reservoir, so it has simply been arbitrarily divided into two elevation zones. Logically, the lower zone will face inundation more frequently and thus increased impacts will occur.

The similarity of the resources (all four are lithic scatters) will permit the discussion of all four together the recommendations will also be similar.

CA-Mer-257, -254-, -258, and -259

Alternative 1.--The best alternative would be preservation; however, seasonal flooding even today would likely impact both of the sites below 200 feet (CA-Mer-254 and -259) and is likely not a viable option.

Alternative 2.--In the event of adverse effects, the next best alternative is mitigation or limited testing. CA-Mer-259 has already been destroyed, and little further impacts are possible. We recommend that the site be surface-collected to providd a comparative artifact collection. A limited testing program is not needed.

The other three sites, CA-Mer-254, -257, and -258, should be mapped with a stadia rod and transit, and a scaled map with contours should be prepared. All artifacts will be plotted on the map and collected for distributive studies. They will then be collected for whatever forms of analysis are appropriate. This is a relatively inexpensive procedure, and it will form a comparative data base for investigations elsewhere, especially for subsistence practices and settlement system research concerns. The sites may represent the small scale exploitation of a local resource along Canal Creek by groups coming from either the Merced River or from the foothills (i.e., the Burns and Bear creek area).

These sparse lithic scatters do not require a phased testing program. Simple collection and mapping will negate the adverse effects, and it can be inexpensively done.

TABLE 3

Mitigation Recommendations

Elevation	Site	Type	Area m^2	Borrow Impacts Alt. 1	Borrow Impacts Alt. 2	Inundation Impacts Alt. 1	Inundation Impacts Alt. 2
185 feet	CA-Mer-254	L	150	None	None	None	Wave action
195 feet	CA-Mer-259	L	6,000	None	None	None	Wave action
205 feet	CA-Mer-258	L	300	None	None	None	Wave action
205 feet	CA-Mer-257	L	1,125	None	None	None	Wave action

PRIORITY OF MITIGATIVE/PROTECTIVE MEASURES

The resources within the proposed Castle Reservoir are, except for CA-Mer-259, all light lithic scatters which may originally have had some subsurface deposits. The mitigative measures proposed are the same, and an economy of effort dictates that they should be undertaken at the same time. The mitigative measures proposed are simply mapping and the collection of artifacts on the surface of each site. This is an inexpensive alternative, and we recommend that it be undertaken for all four resources (Table 4).

TABLE 4

Priority of Mitigative/Protective Measures

Site	Best Alternative	Not Critical	Mitigative Measures
CA-Mer-259	Preservation	X	Collection
CA-Mer-258	Preservation	X	Mapping/Collection
CA-Mer-257	Preservation	X	Mapping/Collection
CA-Mer-254	Preservation	X	Mapping/Collection

SCHEDULE FOR MITIGATIVE/PROTECTIVE MEASURES

The only mitigative measures proposed for the four resources found during the cultural resource survey of the proposed Castle Reservoir are very limited in extent since they are only sparse lithic scatters.

The only mitigative measures proposed are mapping and artifact collection at CA-Mer-258, -257, and -254, and only artifact collection at CA-Mer-259, the destroyed site (Table 5).

One day with a two-person crew is projected for the mapping and collection of artifacts off three of the sites to be mapped. The other site, CA-Mer-259, will take only half a day.

TABLE 5

Schedule of Crew Days at Each Site

Site	Man/hours	Crew/days
CA-Mer-259	8	0.5
CA-Mer-258	16	1
CA-Mer-257	16	1
CA-Mer-254	16	1
TOTAL	56	3.5

CONCLUSIONS

The cultural resource survey of the proposed Castle Reservoir produced only four sites (CA-Mer-254, -257, -258, and -259), of which two (CA-Mer-257 and -258) were very light prehistoric lithic scatters; one (CA-Mer-254) was a lithic scatter associated with modern trash; and one (CA-Mer-259), a destroyed prehistoric occupation which may have had subsurface cultural deposits.

The sparseness of all of the sites, even CA-Mer-259, suggests that the project area was only marginally exploited in the prehistoric period. The presence of definite ground stone artifacts indicates the harvesting of plant foods, but what species is not evident. Moreover, the minimal archeological evidence will decrease the chances of adequately responding to even the above research concern. The very sparseness of the artifacts on the sites, and the apparent lack of subsurface cultural deposits, except possibly for CA-Mer-259, suggests a general low intensity of exploitation of resources along the watercourses, rather than a focus upon a restricted locale. For example, the harvesting of a permanent grove of oak trees does not appear indicated, but the exploitation of seasonally available grass seeds, legumes, etc. growing along the banks of the creek, does seem warranted from the artifactual evidence.

The sites indicate special task groups, many perhaps from the inferred winter villages along Burns and Black Rascal Creek. Canal Creek would have been dry in the summer thus, like Burns and Black Rascal creeks, the occupation must have occurred in the wet season. Alternatively, the groups might also have come from villages along the Merced River or elsewhere.

The lack of any temporally diagnostic artifact forms leaves the resources "floating" in time, although a protohistoric or Upper Emergent Period occupation is the most likely. As well, the "ethnicity" of the protohistoric inhabitants is also nondeterminable from the archeological evidence, although the sum of the ethnographic evidence points to the Northern Valley Yokuts as the probable late inhabitants.

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APPENDIX 1

ETHNOGRAPHY, ETHNOHISTORY, AND HISTORY OF THE MERCED COUNTY STREAMS PROJECT AREA

by

Jeanne Muñoz

with

Melinda Peak

INTRODUCTION

The Research

Standard ethnographic, ethnohistoric, and historic research was conducted to gather data for this part of the report. Published and unpublished documents, reports, records, and maps were examined at local institutions (libraries, historical societies, county offices); at California State University, Fresno (Woodward Special Collection); at the Stockton-San Joaquin County Public Library; at the California State Library, Sacramento; at the California State Historical Society Library, San Francisco; and at the Bancroft Library, Berkeley. Interviews were held with local historians, ranchers, Native Americans, and with professional colleagues with research interests and experience in the local area (see Appendix 2). Data were evaluated using standard criteria (see Haekel 1973).

Problems in Conducting the Research

Local data sources presented some very real difficulties. Research on the early years of Mariposa County was hampered by the lack of documents. The courthouse burned in 1854, destroying county records from 1849 to that date. In addition, a number of the early deed books are missing (Vols. E, F, H, I, J, K, L, and V). Tax assessment roll books begin in 1858 and have a continuous run from 1860 to the present. There are no map books to accompany the early records, and locational data are vague for the properties being taxed (a typical entry might be "Bear Creek"). Section and township information is first provided in 1871.

The Merced County Courthouse is currently undergoing interior remodeling, and the archival materials of the Merced County Historical Society, previously stored on the first floor of that building, have been removed to a storage facility and are inaccessible. Other county records (such as tax assessment

rolls) are in storage elsewhere, and keys to the storage facility are unavailable. The Historical Society's collection of prehistoric artifacts is also in storage. Access to these materials will not be possible before the first part of 1983.

There are a number of general histories available for Merced County (e.g., Elliott and Moore 1880; Outcalt 1925; Radcliffe 1940; Clark 1955; Graham 1957), and several particularized histories as well, such as the history of Atwater (Atwater History Club 1958), of LeGrand (Nolan 1972), of the Merced Irrigation District (McSwain 1978), and of Merced County schools and school districts (Merced-Mariposa Retired Teachers Association n.d.). There are no comparable general histories for Mariposa County, although a wealth of material exists on Fremont and there are a number of good accounts of the gold rush era (e.g., Collins 1949; Wood 1954) and on Yosemite. These sources, and material gained from interviews, were used to present a more complete picture than that afforded from primary archival data only.

Organization of the Data Gathered

The information gathered has been synthesized and is presented below in terms of historical themes.

EXPLORATION AND EARLY SETTLEMENT, TO THE 1840s

Exploration was minimal and had no great effect on the area other than the bestowing of such place names as Merced and Mariposa by the Spanish. The explorer Gabriel Moraga and his diarist Pedro Muñoz came through the area in 1806, failing to observe any Native American settlements. Other Spanish forays were made into the lower (or northern) portion of the San Joaquin Valley during the early part of the 18th century, and nearby Indians were removed to the missions. Land grants were made by the Mexican government in the 1830s and 1840s near, but outside, the Project Area. Jedediah Smith (and probably others) trapped furs in the 1820s and John Charles Fremont and Joseph Reddeford Walker explored in the 1840s.

NATIVE AMERICANS OF THE STUDY AREA

Identification of the Original Inhabitants

Anthropologists and ethnohistorians do not know with certainty the tribal identity of the early inhabitants of the Merced County Streams Project Area. No named villages are located within the Area (Kroeber 1925 Plate 37; Latta 1977 Endsheet; Levy 1978:400; Wallace 1978:462), and there is uncertainty as to tribal affiliation of some of the groups which

occupied nearby areas (Kroeber 1925:474). Merriam (1907) shows part of the area as Southern Miwok (Map 1), but Cook assigns the entire Project Area to the Southern Miwok (see Map 2).

Wallace (1978:462), on the other hand, assigns the downstream and plains portions of the area to the Yokuts, showing the Coconoon Yokuts on the north side of the Merced River, the Nopchinchi Yokuts on the west side of the San Joaquin River between the Chowchilla River and present-day Firebaugh, and the Chauchila Yokuts on the north side of the Chowchilla River. Kroeber states that the last-named group is "the last tribe (of Northern Valley Yokuts) until Stockton is reached, concerning whom anything definite is known" (1925:485). Personal extensive research (Muñoz 1976a, 1976b, 1980) and information from Castillo (1981), who has also conducted in-depth research on the area, does not support either Yokuts or Miwok occupation of the downstream and plains portion of the Merced County Streams Project Area during historic times; it does provide evidence of lack of occupation by any Native American group at least as early as 1806. (Archeological evidence may, of course, provide the necessary data to determine protohistoric occupation of the area; see Native Americans of the Project Area, below.)

It is possible that Northern Valley Yokuts occupied the plains and that Southern Miwok held the foothills of the area in prehistoric times, for Kroeber states, in a discussion of the western boundary of the Southern Miwok (1925:443) that

> . . . it has sometimes been assumed that the Miwok ranged as rightful owners over the whole eastern and more fertile side of the lower San Joaquin Valley, but the evidence is nearly positive that this tract was Yokuts, and that the precise commencement of the first foothills marked the boundary between the two stocks.

Native Americans of the San Joaquin Valley, 1800-1855

A brief review of the history of the Native Americans of the San Joaquin Valley between 1800 and the end of the gold rush may help explain the uncertainty of tribal occupancy.

The historic era in California is usually said to start in 1769 with the Spanish overland exploration/missionizing expedition of Portolá and Serra. The first contact with Native Americans of the Project Area did not occur until 1806, when Gabriel Moraga, with Father Pedro Munoz as his diarist, entered the San Joaquin Valley. The party camped on Bear Creek in Township 8 South, Range 10 East, on September 27 (Cook 1955a: 48), then explored to the north, discovering and naming the Merced and other rivers, returning south early in October. Cook (1960:284) notes:

> . . . Moraga's party stayed close to the eastern edge of the valley. On the seasonal streams found in this area (including, it is assumed, Black Rascal, Burns, and Bear creeks) there was a distinct absence of permanent Indian settlements.

Many villages were noted, however, to the north (Merced River and beyond) and to the south (on the San Joaquin). It is possible, of course, that unobserved villages existed, perhaps upstream from Moraga's route, hidden from view by the foothills. It is even possible that Indians from the general area were later taken to one or another of the missions, as it is known with certainty that Nopchinchi Yokuts immediately to the southwest were taken in (Castillo 1981).

If unobserved villages did exist, or if the Area was populated after Moraga and Muñoz came through, the population may have been wiped out in the epidemic of 1830-1833, when malaria spread from Oregon through the entire Central Valley (Cook 1955b). Cook (1955, 1978:92) estimates that from one half to three quarters of the total native population of the Sacramento and San Joaquin valleys may have died in this epidemic. Perhaps present-day eastern Merced and western Mariposa counties were particularly hard hit, and the Area was deserted by the survivors, thus explaining the lack of description of the local Indians by Anglo Americans.

During the gold rush the Indians in the general area were further decimated (by one means or another) beginning in 1849 and particularly 1850 and, as a result, a reservation system was authorized by the U.S. Congress in an attempt to protect both Indian and non-Indian. The first treaty signed by Commissioners Redick McKee, G. W. Barbour, and O. M. Wozencraft and the "chiefs, captains, and head men" of various groups of Indians established the Merced River Reservation between the Tuolumne and Merced rivers. The name of one of the tribal groups represented in the treaty--the Coconoon-- is described by Kroeber (1925:474) as uncertain as to its tribal affiliation, but is mapped by Wallace (1978:462) as a Northern Valley Yokuts group occupying the north bank of the Merced River near its juncture with the San Joaquin River.

The names of other groups in the treaty do not appear in modern anthropological literature (except for Hodge 1907-1910), although some appear in various ethnohistoric and historic accounts. The "Po-to-yun-te," for example, are called "potoyensess" by Ward in his 1851 account (Collins 1949:55-56), and are described by Ward as living near the trading post on the Merced River (close to present-day Merced Falls). In 1859, the Indian agent at the Fresno River Agency reported to the Commissioner of Indian Affairs that one hundred ten "Poto-en-cies" had "abandoned their native land, the Merced Valley and are now on the Chowchilla" (Lewis 1860). This is the location assigned them by Taylor on his map of 1864 (Heizer 1941).

Adam Johnston's map of 1852 shows "500 Indians" living on the "Merced River" (Map 3), but his accompanying report (Johnston 1853) does not provide locational data by tribal group or ethnographic description. Howard, in his reminiscences (Cossley-Batt 1928), provides ethnographic material, but mostly for Northern Miwok, even though he settled in Southern Miwok territory. Eccleston's diaries (1849-1854), written in the area, contain important ethnographic details, but tribal affiliation (other than either Yokuts or Miwok) is uncertain.

In sum, there are inadequate data to assign with certainty the Project Area to one or another specific Native American group. It may have been entirely Yokuts territory at one time, with Southern Miwok moving in after decimation and/or abandonment. The foothills may have been a transition zone, shared by both groups. Or the Yokuts may have held the plains, the Miwok the foothills. Or, more likely, it was unoccupied from some unknown time before 1806 until settlement by non-Indians.

Ethnographic Overview: Miwok and Yokuts

The sociocultural systems of the two groups which may have occupied the Area--the Miwok and Yokuts--were very similar (Gayton 1948:362), and it is therefore possible to describe accurately the putative aboriginal inhabitants of the Project Area even though their identification cannot be determined conclusively.

The Native Americans derived their subsistence from the abundant natural resources of the plains, foothills, and mountains (fish, game both large and small, grasses, seeds, tubers, fruits, berries, nuts), with primary caloric reliance on the grasses, seeds, and particularly the nuts (e.g., acorns) gathered by the women. Men hunted, and thus provided the more prestigious food--meat--and both men and women fished (Gayton 1948: 185). Food was usually obtained within the recognized local territory of each cultural group, supplemented with food obtained during regularized seasonal trips into other areas. Trade with other groups for items not available locally was common (Davis 1961).

Permanent villages were sometimes as large as several hundred (Cook 1955a), and were kin-based in their sociopolitical organization. Residence was usually patrilocal, descent was patrilineal, and moiety or lineal exogamy was the rule (Gayton 1948; Gifford 1926). In some areas, one town served as the center of economic, political, and religious activities for smaller satellite villages (Merriam 1967). Caches of food, treasures, and other goods were maintained at the central town, and there were held important political meetings and religious ceremonies (Bean 1974:15). Each of these centers had one or more chiefs, men who were usually the heads of lineages.

Chieftainship was an inherited status, and chiefs were ranked according to the position of their lineage or according to linkage with particular totem figures (Gayton 1932:372-373; Merriam 1967:340, 347; Bean 1974:22).

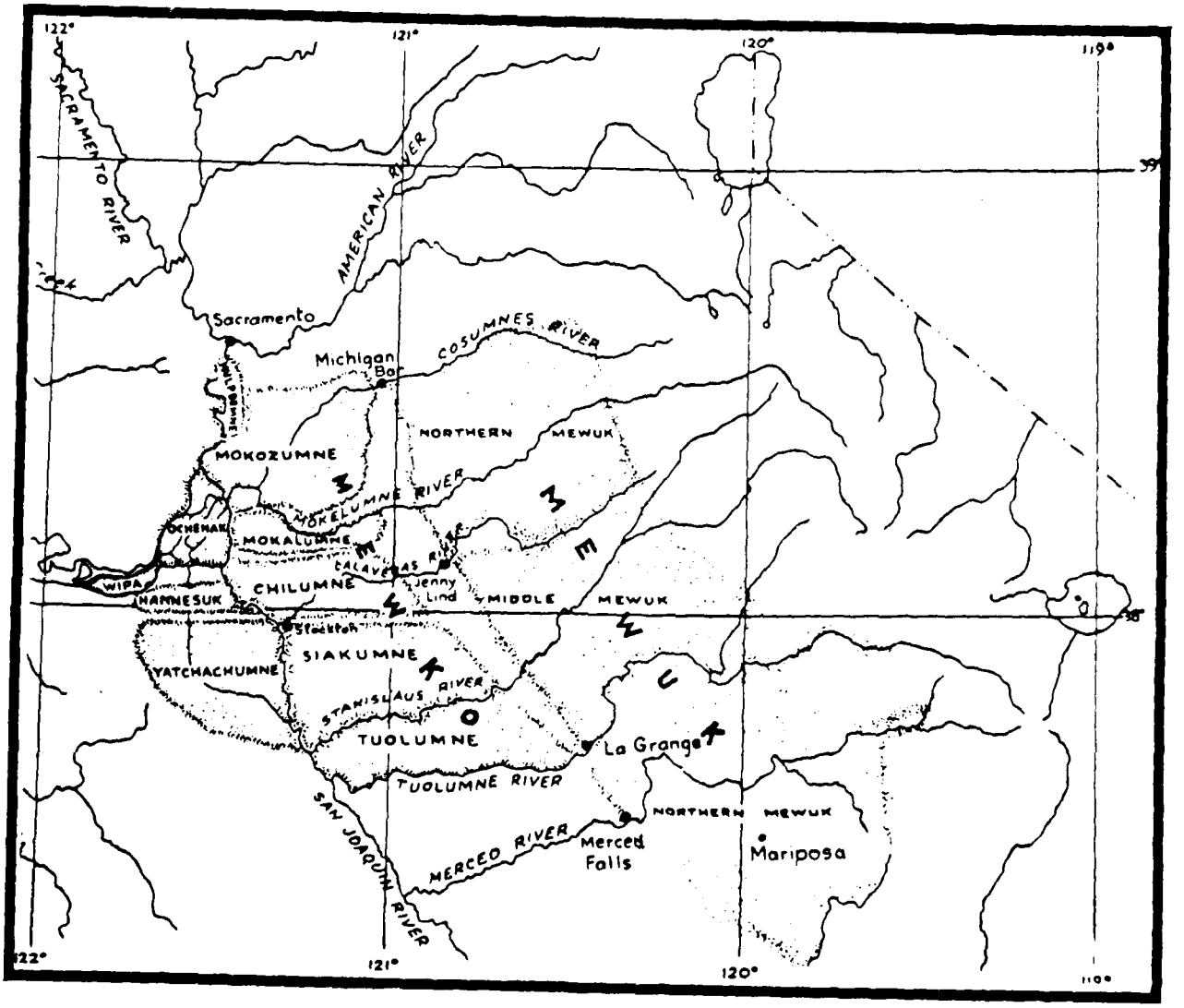
Natural Setting of the Original Inhabitants

The territory occupied by the Northern Valley Yokuts and the Southern Miwok was part of the San Joaquin Valley and the adjacent foothills and mountains of the Sierra Nevada. The San Joaquin Valley extends some 280 miles north to south, from the Stockton Delta to the Tehachapi Mountains; the width of the valley averages 50 miles. The valley floor (the plains) is flat and virtually featureless except for waterways. In prehistoric times, the southern or upper portion of the valley was characterized by two major lakes, and sloughs, marshes, and deltas were throughout the entire valley. Two major rivers run parallel with one another from the Sierra, then diverge on the valley floor, the Kings to the south, and the San Joaquin to the north. Both are fed by smaller streams, most of which enter them, at right angles, on the plains. During heavy snow melt or excessive rains, the two river systems intermingled and much of the valley floor was inundated. Early observers reported on this condition, as the following description made by topographic engineer Lieutenant George H. Derby of conditions in the spring of 1850 illustrates:

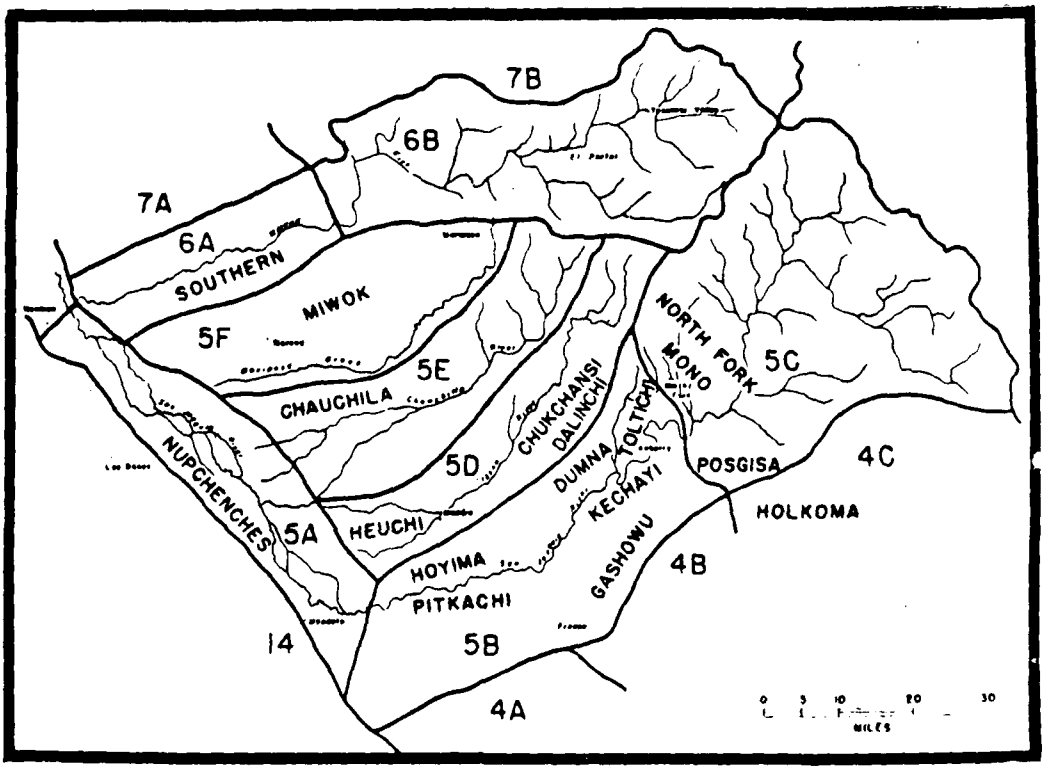
> We left the ferry . . ., and traveling southwest for 19.84 miles encamped on the edge of a swamp at a point about three miles above the mouth of Kings river and immediately opposite (an Indian) village. . . . I was anxious to cross the river and visit it, but was informed by the Indians, a large body of whom swam across to our encampment, that all the country in the vicinity was overflown, and that it would be impossible to cross, even if we were to construct "balsas" of tule owing to the rapidity of the current. It was evident enough that the country was overflown, and as I found it impossible for anything but an Indian to get even to the bank of the river, I was reluctantly obliged to give up my idea of crossing at that point (Derby 1850).

The wetlands, with their tules and marsh grass, contrasted with the rest of the plains, which were sparsely covered with vegetation most of the year. The Spanish priest, Pedro Moraga, stated in September, 1806, that:

> From the point where we left the tule swamps to this place (Bear Creek) the land is really miserable. Salt flats and alkali patches, with innumerable ground squirrel burrows are all that one can see. . . . The forage was extremely scanty, and that the country appeared to have been burned



Map 1: Native Americans of the Merced County Streams Project Area, according to Merriam (1907).



Map 2: Native Americans of the Merced County Streams Project Area, according to Cook (1955a).

> over by the Indians did not conceal the fact that the land is very poor (in Cook 1960:284).

Yet in the spring the valley can be beautiful:

> It was the spring of 1851, and the San Joaquin Valley was in an absolute state of nature . . . upon each day's march the landscape presented a striking change of attractions in the flowers that overspread the ground. They alternated in color: one day the flowers were red, the next white, then blue and yellow. The atmosphere was clear and wholesome. . . . (Keyes 1884:234).

Animal life was abundant and varied. An observer in 1851 reported seeing

> . . . a band of several hundred elk, and the motion of their antlers as the animals ran away was worth a journey across the continent to witness. Large troops of wild horses, many deer, antelope, and coyotes were constantly on view (Keyes 1884:234).

The horses had been introduced by the Spanish and were noted as early as 1806 (Muñoz in Cook 1960). Their numbers were increased in the 1830s, the indirect result of drought and consequent reduction of grain crops and natural forage in southern California. Ranchers and farmers were ordered by the Mexican government to kill their excess horses in an effort aimed at saving as many cattle as possible, but many chose rather to drive their stock into the San Joaquin Valley, intending to retrieve them at a later time. The animals multiplied rapidly, filling the entire valley (W. Smith 1939:165-166).

Other animal resources were fish (including salmon), mussels, turtles, migratory waterfowl, and smaller mammals and birds. Insects were numerous and varied, and large numbers of mosquitos bred in the wetlands.

The climate was as it is now--that is, relatively mild, but with excessively hot days (over 100 degrees) in the summer and some very cold days (below freezing) in the winter. Rainfall (a scant 10-15 inches a year) is concentrated between November and April, and there are cyclical droughts and floods. "Tule" fog of zero visibility may be held at ground level by atmospheric conditions for days.

Contemporary Native Americans

None of the eight Native Americans consulted (see Appendix 2) knows the ethnic identity of the original inhabitants of the Merced County Streams Project Area, either for precontact or early historic times. None of them knows of any specific

village site (other than what they have learned from recent archeology), of gathering sites, or of sacred sites in the area. All of them are interested in the findings of the Project and expressed the desire to visit sites during survey or test excavations.

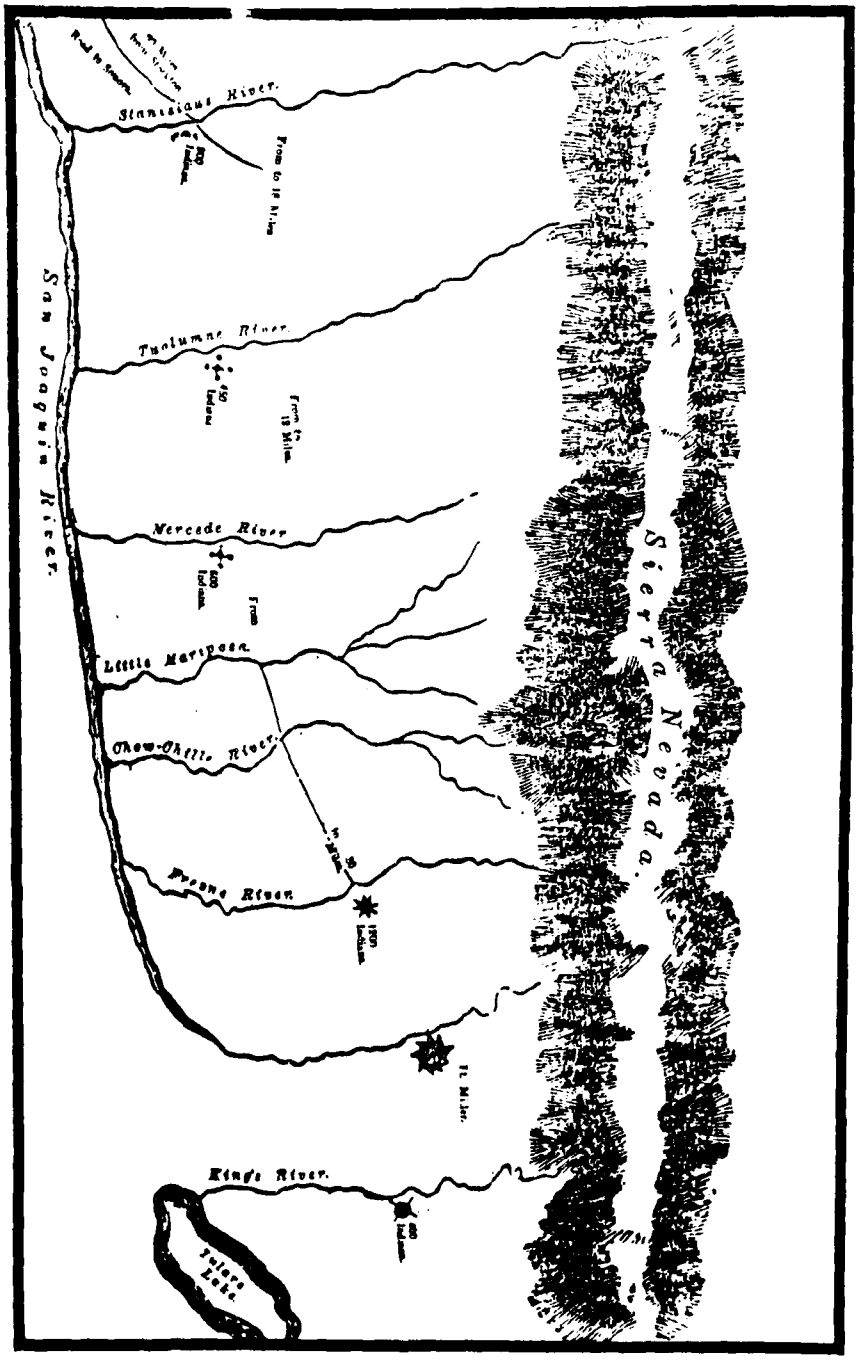
Native Americans throughout California (and other states as well) are concerned about the treatment of burials found through archeological research, and Indians of Merced and Mariposa counties are no exceptions. They are concerned about all Native American burials, no matter the time depth and no matter how distant the genetic relationship. They prefer that any skeletal material found in excavation be covered back over and that the grave goods remain with the body. They are usually willing that in situ measurements, sketches, and photographs be made. If the burial will be disturbed or destroyed in construction, reburial is a possibility but is an unhappy compromise, expensive to the Native Americans financially, spiritually, psychologically, and emotionally.

ECONOMIC, SOCIAL, COMMERCIAL, AND DEVELOPMENT HISTORY

Mining Frontier

The Southern Mines opened up late in 1848 in the Tuolumne River area, and gold mining camps rapidly sprang up along streams and rivers throughout the Sierra Nevada foothills, spreading as far south as the Fresno River by 1850. Men relocated frequently, individually and collectively, in response to stories of richer diggings elsewhere. The earliest camps were laid out haphazardly and until the late 1850s the majority of the houses were built of wood framing and canvas walls, partitions, and roofs. By the late 1850s, cabins with log or board sides, a mud and stone fireplace, and canvas roof came to be standard (Paul 1947:75).

Supplies were brought in from Stockton over what came to be called the Stockton-Millerton Road. The road ran east from Stockton to the foothills, then followed closely the edge of the hills (to avoid the often impassable wetlands), passing through Knight's Ferry, La Grange, Merced Falls, Union (a post office of the late 1800s located in the Northeast ¼ of Section 2, Township 8 South, Range 16 East, USGS Owens Reservoir Quadrangle), Newton's Ferry (on the Chowchilla River), and ending at Fort Miller (later Millerton) on the San Joaquin River. The road marks the boundary between Merced and Mariposa counties and is visible today at the intersection of the county line and Highway 140. The quantity of freight hauled on the road was immense, and large freighting businesses were built up. Hundreds of men and thousands of mules and horses (and a few oxen) were employed, and numerous stopping places (usually a



Map 3: Distribution of Reservation Indians in the San Joaquin Valley, 1852 (Johnston 1852).

ranch, sometimes a hotel, plus stables and corrals) were necessary for overnighting. The nearest regular stopping place to the Project Area may have been Howard's Ranch, about one mile from Burns Reservoir, in Section 36, Township 5 South, Range 15 East, U.S.G.S.

Trading centers or towns developed throughout the mining district, the nearest to the Project Area being Indian Gulch (Section 3, Township 6 South, Range 16 East, USGS Indian Gulch Quadrangle), approximately five miles north of Bear Creek Reservoir.

Placer mining in the Project Area was short-lived, and no quartz mining claims were made in the Merced County Streams Project Area.

Cattle and Sheep Frontier and Development

Cattle ranching. Cattle ranching became an increasingly important economic activity in the Merced County Streams Project Area from the early 1850s on. The early ranchers grazed their stock on government-owned land, purchasing, by gaining a patent or official conveyance, relatively small (compared to the numbers of acres actually used) parcels of land for ranch headquarters. This practice continued for several years.

Warrants for military bounty lands were made assignable in 1852, and "their principal use in California began from that date" (Robinson 1948:182). These warrants entitled the holders to 160 acres (a quarter section) of any public land in the United States valued at $1.25 an acre; if valued at more than $1.25, the difference could be made up. Many who took advantage of military warrants were speculators, and quickly turned a profit on their "investment."

After 1853, some land was acquired through preemption--i.e., the preferred right of purchase given actual settlers. After May 20, 1862, when President Lincoln signed the first Homestead Act, free land for actual settlers became available.

> Under the Homestead Act of 1862 settlers could acquire farms of 160 acres from unappropriated (i.e., public) lands free of all charges except a nominal filing fee to be paid when application was made at the proper land office. Five years of residence and cultivation were required of the settler before he would be entitled to a certificate or patent from the United States. The privilege of commuting was also permitted--that is, of converting the homestead with a preemption right and paying the regular price per acre (Robinson 1948:168-169).

All of these methods of land acquisition were made use of by cattle ranchers in the Project Area.

The foothills along the county line were and are unsuited to farming (except for some non-irrigated grain crops), and cattle ranching continues to be the primary economic activity there. Ranch headquarters were built for each ranch, with house, barn(s), shop(s), corrals, scales, wells, etc., located in one complex (as at Burns Creek Reservoir) and with other buildings, corrals, watering troughs, holding pens, etc., at strategic locations on the property.

Sheep ranching. Sheep ranching began in the Merced County Streams Project Area at least as early as the late 1850s. One of the first sheep ranchers was Cyrill C. Smith, who arrived in California early in 1852, joining his brothers, Pardon and Dorillus, in gold mining at Woods Crossing. Cyrill took time to help with harvesting in June of 1854:

> I have been down twenty miles towards Stockton a haying on dry creek valley. The best wheat and barley grows there I ever saw (;) the hay is mostly wilde (sic) oats from one to two tons per acre. The most splendid Country I ever saw (C. Smith 1854).

This experience may have influenced him away from the mines, for at least as early as 1859 Cyrill, Dorillus, and James (another brother) were raising sheep.

> I am at work for Cyrill & Dorillus attending a band of sheep for them. We live about four miles N.W. from La Grange and Eighteen S.W. from Jamestown . . . there are about seven or eight hundred in this band. They have moved the other band of about eighteen hundred over the river about six miles for better food (J. Smith 1859).

The Smiths were sheep ranching in the general Haystack Dam area by 1872 and, according to the Merced County Assessment Roll, they owned 5,000 sheep valued at $7,500 and 11,000 acres of land valued at $13,750. Improvements on the land must have been minimal as they were evaluated at $50.00. This land was northwest of the Haystack Dam area, but by 1881 C. C. Smith owned all of Section 19 (directly in the proposed Haystack Dam area), the North ½ of 20, and the West ½ of the Northwest ¼ of 29 (Merced County Assessment Roll, 1881). His stock had increased to more than 17,000 sheep, and his other taxable possessions indicate that he was very successful:

2 watches	$100
furniture	200
sewing machine	25
52 tons grain	780
3 wagons	175

2 harness	$ 25
3 American horses	300
2 colts	50
11 half breed horses	295
3 dozen poultry	10
1 mule	20

By the time of Cyrill Smith's death, he owned 30,000 acres. These were inherited by his son, Elmer D. Smith (Aucutt 1933), including holdings in the proposed Haystack Dam area (Official Map of Merced County 1909).

J. W. Mitchell was another early sheep rancher in the Merced County Streams Project Area. Mitchell bought thousands of acres of land in the San Joaquin Valley at $1.25 an acre, and at one time he owned more than 100,000 acres in Stanislaus and Merced counties (Mitchell 1877), including land at and near proposed Castle Dam

> Next he bought thousands of head of sheep to pasture off the wild grass, weeds and brush that grew on his land. He also bought thousands of head of horses and cattle (Atwater History Club 1958:20).

Sheep were also raised in the Burns Reservoir area (e.g., by John B. Bennett), but sheep ranching did not continue to thrive as did cattle ranching. Those areas in and near the foothills which had been used for sheep ranching became cattle grazing areas or supported grain (dry) agriculture. Those areas farther out on the plain were converted initially to grain agriculture, later to irrigated crops.

Farming Frontier and Development

Dry farming. Farming began in the Merced County Streams Project Area in the early 1850s. Agriculture was a challenge to the new settlers, who were unfamiliar with dry farming, knew little if anything about irrigation, and had bad luck as well. In 1854, for example, smut, drought, and insects created problems with crops througout the San Joaquin Valley (Alta California 1854), but knowledge gained from experiments in the northern part of the valley with dry farming, with types of wheat suited for the climate, and with farm machinery made possible the development of farming on a large scale.

Farmers moved into the area in increasingly large numbers, gaining patents to the public land and planting grains. Disputes between farmers and ranchers were not uncommon, occasioned by crop damage and/or destruction by cattle. The ranchers insisted that the farmers were responsible for fencing the cattle out; the farmers insisted that the ranchers were responsible for fencing the cattle in.

> Cattle were very troublesome, and had to be herded night and day to prevent their encroaching on the fields and destroying the growing grain (Lewis Publishing Company 1892:74).

The ever-increasing farmer population became politically powerful and in 1874 the "No Fence"--meaning the farmers did not have to fence--law was passed.

Grain was grown in and near the foothills and in the downstream and plains areas also. In the Castle Dam area, e.g., J.W. Mitchell's sheep cleared his land of ground cover, following which he encouraged others to dry farm it, renting it out in 2,000-acre parcels. He built a house for each tenant and furnished them with plows, grain seeds, wagons, and farm machinery. He himself also grew grains.

Intensive agriculture. Wheat and other grain farming, along with cattle ranching, continued to be the main economic activities of the eastern Merced-western Mariposa counties areas through most of the 1880s, but the development of an irrigation system by Crocker Huffman Land & Water Company in 1888 made possible intensive agriculture and resulted in further changes in the area beginning about 1900. Numerous crops were introduced, including fruit and nut trees, vegetables, and cotton. Dairy farming developed with the introduction of irrigation and the assurance of adequate feed. Turkeys were found to do well in the area.

Railroads, Other Transportation, and Communications

Railroads. The railroad came to Merced County in 1872, resulting in diminished use of the Stockton-Millerton Road. Bridges were built across creeks, and freight was hauled by wagon team from the railroad line to the plains and hills to the east. Complaints were made of farmers who changed the routes of roads "to suit their own convenience or whim," and, as a result, some of the bridges were left without roads to connect them (Outcalt 1925:308).

The importance of the railroad in the changing economy of the Project Area cannot be overstated. The population of the mining country of the foothills had dwindled by the 1870s, and the major market was to the north, in San Francisco, from whence agricultural products were shipped worldwide. The railroad provided reliable, satisfactory transportation, and was thus an impetus for intensive agriculture development.

The railroad had another effect on the growth and development of the area. It advertised the "health, wealth, and prosperity" attainable in California, and offered low fares to get here. Land was still easy to obtain, and many of the earliest

arrivals (by train and otherwise) became large landholders (i.e., over 5,000 acres).

Towns developed in the area with the coming of the railroad (only Plainsburg predated the railroad, and it diminished in importance once the system was in operation), and increased in size as the rural population increased. The population of Merced County grew from 8,085 in 1890 to over 15,000 in 1910 and more than 25,000 by 1920. Part of this growth was the result of divisions of land into colonies or other subdivisions. The first attempt to establish a colony (for Hollanders on 4,000 acres near Lake Yosemite) was a failure, as were some of the others, but most were distinct successes, contributing to the development of intensive agriculture and to the increase of population as well--and all of this an outgrowth of the railroad system.

Other transportation. As noted above, the only established route of transportation into the Merced County Streams Project Area prior to the railroad was the Stockton-Millerton Road. It ran east from Stockton to the foothills, then south above the seasonal wetlands. The Stockton-Millerton Road continued to be the most important route of transportation until the early 1870s.

> Other roads were created in the early days by the simple process of dedicating a more or less indefinite strip of country to travel. The line was made definite upon the ground by traveling over it, but in the case of washout and ruts the travelers pioneered a new route alongside the old one. There was plenty of land, and for the most part it was public land, and was used only for cattle range, except the comparatively small areas along the river and creek bottoms (Outcalt 1925:307).

After the railroad was established on its north-south route, east-west roads developed from the railroad tracks to the foothills.

Communications. During the gold rush, mail arrived once a month. It was carried into the Southern Mines by the express service of Reynolds & Company, bought out by Wells, Fargo & Company, which built an office in Hornitos in 1854 (Chamberlain 1972:52), and charged $5.00 for the delivery of a letter from San Francisco (Clark in Chamberlain 1972:19).

The railroad system established in 1872 greatly improved mail service and other contact with the rest of the United States.

Settlement

Settlement pattern. Settlement during the gold rush was in the foothills, along streams and rivers. Mining camps were often short-lived, as were trading centers or towns. Population density was high in the mining areas until about 1860. By that time, many miners had grown discouraged at their meager earnings and had either returned home or found other ways to earn a living. Often the new work was related in some way to providing food, drink, mail, or supplies to the miners. Trading posts were set up, express services provided, and teams and wagons hauled in machinery (stamp mills, for example), building materials, etc. Some moved westward and became cattle ranchers.

Merced County was formed out of Mariposa County in 1855, and the Stockton-Millerton Road became the county line. For many years the bulk of Merced County's residents lived in the area near that line.

> Scarcely too much emphasis can be laid upon the very close connection which existed between the new county, with its activities creeping out into the big plain of the San Joaquin, and the mother county in the hills. The new county was creeping out onto the big plain of the San Joaquin, it is true; but its markets, its associations, the former dwelling-places of many of its people, a large part of its social connections, and numberless other bonds were across the line. The activities of the two counties were different in character from the beginning, from the very nature of their topography; but in many important respects they formed one community. The very line which divided them politically from 1855 on, the Stockton and Millerton Road, the main (indeed the only) artery of travel between north and south, was a bond of union rather than a barrier (Outcalt 1925:163).

The primary activity "creeping out" into the San Joaquin Valley was cattle ranching, and the settlement pattern of the 1850s and 1860s reflects this. The Merced County Assessment Roll for 1857 shows that most of the population was located along the Merced River from Merced Falls out onto the plains almost as far as the San Joaquin River, and along creeks from Burns and Bear to the Chowchilla, here stretching no farther onto the plains than about halfway to the San Joaquin.

> Apparently the general pattern for the east side (of Merced County) in these early years of settlement was for the young miner to come down from the gold field, establish a residence and ranch, and run it alone or in partnership with another man. Eventually he would feel the need to begin a family and would return to his former home to find a wife. Having done so, both would return to California to settle permanently (Graham 1957:41).

The settlement pattern in the foothills continued during the grain farming era, though the pattern of land ownership, of necessity, changed. Increasing numbers of new settlers (some from the mines, many from outside the state) arrived to reduce the plain between the foothills and the San Joaquin River to private ownership and to try their hand at farming. The farms were smaller than the cattle ranches, although some of them became very large later on, and the farm population density was higher.

The actual distribution of the population is impossible to determine for this era as the 1880 census data are not divided into units smaller than a county, but Graham (1957:60-61) has correlated soil types with impressions of "old timers," and concludes the following:

> It appears that at the center of the favored piedmont alluvial plain, farmhouses were located on almost every section; in other words, there was about one house to the square mile. On the margins of this belt, the farmhouses became fewer, averaging one farmstead to every two or three square miles. Once outside those areas where wheat farming was carried on, the population became truly sparse.

Merced County population increased dramatically following the coming of the railroad. The 1870 census shows 2,807 individuals living in Merced County, most of them on the east side. By 1880, the population was 5,656; by 1890, 8,085. It is in the areas of intensive agriculture (i.e., mostly the alluvial plains) that population increased the most.

The 1900 Merced County census shows an increase in population to almost double that of 1890, and during each decade after that it increased between 40 and 60 percent. By 1950, it was about 77,000, most of it the result of urban growth.

The population of that portion of western Mariposa County which is part of the Merced County Streams Project Area has gone through the same changes as that of contiguous Merced County.

Ethnic composition. During the early days of the gold rush, most of the miners were from the eastern and southern United States, and were young and single. An analysis of the 1857 Assessment Roll for Merced County shows that:

> With the exception of a very few Spanish names . . . the names are practically all American of the sort that were brought from England (Outcalt 1925:156).

Italians are reported in the Mariposa (town) area in 1849 (Reynolds in Chamberlain 1972:15), and at Indian Gulch sometime thereafter ("Old Timer," in Chamberlain 1972:153-154), and 82 blacks and 1,571 "foreign residents" are recorded in the 1852 state census (Alta California, November 12, 1852).

The picture was probably little changed in the 1860, although this is difficult to determine as the 1860 federal census does not record state or national origin.

The 1870 census shows 2,807 individuals living in Merced County, 611 of them foreign born (Outcalt 1925:299). By 1880, the population was 5,656, 1,700 of whom were foreign born. In 1890 it was 8,085, with over 2,000 foreign born. Most were from China (597), next Ireland (265), then Germany (177), British America (121), Mexico (110), England and Wales (93), France (59), Scotland (38), and Sweden and Norway (27). The bulk of the population during these decades was male (Outcalt 1925:299-300). The first Japanese, Portuguese, and Italians are identified in the 1900 census. The male-female ratio of the native born population was closer to even (3,941 to 3,079) than before, but that of the foreign born was still predominantly male (1,703 to 492) (Outcalt 1925:301).

Ethnic diversity continues to the present day, as is demonstrated by the numerous ethnic organizations listed in the local phone book.

POSSIBLE EXPLORATION OF THE PROJECT AREA

Early Exploration of the Project Area

The Advisory Council on Historic Preservation recognizes that studies focussed on the "lines of march, stopping places, and landfalls of early explorers" are legitimate research concerns (Advisory Council on Historic Preservation 1980:37-38). Cook (1955a) has established the route of the Moraga-Muñoz expedition to a large extent, and full-scale research on that expedition does not seem warranted. Archeologists should, however, keep the expedition in mind during test phase and mitigation procedures.

The route of Jedediah Smith through the general area in the late 1820s is a matter of dispute (see Fletcher 1924, Merriam 1923 and 1924, on this), and material remains recovered archeologically which appear to fit into the 1820-1830 period should be carefully analyzed.

Native Americans of the Project Area

Ethnographic and ethnohistoric data on the Native Americans of the Merced County Streams Project Area are lacking, and it appears that the Area was unoccupied at least as early as 1806. Archeological research should be conducted to determine, to the extent possible, who the late prehistoric residents were (if

any), and why they abandoned the Area. It is known from previous archeological studies that the material culture of the Yokuts and Miwok differs, and archeological evidence might provide data on the following:

Who lived at each of the four specific project areas in late prehistoric times?

Were the foothill/plains areas a transition zone between the two groups?

Was early historic contact made but not recorded by the Spanish?

Did the population die as a result of war or disease?

Were the Chauchila to the south, who had a reputation for being warlike, responsible for the lack of occupancy of the area?

Anglo American Era

The gold rush. The early records for the Merced County Streams Project Area are missing (i.e., those prior to 1854), diaries by gold miners do not provide Project Area-specific data, and there are therefore many gaps in the early historic record. Archeology can help fill these gaps.

Remains of architectural structures (tents, plank or log tent cabins, rock houses with canvas roofs, etc.) provide relative chronological data for the occupancy of an area by gold miners, traders, etc. The areas for Burns and Bear creeks reservoirs should be examined most carefully for such remains, particularly the more ephemeral evidence of tents, tent cabins, and/or tent "cities." This may make possible a partial reconstruction of the cities." This may make possible a partial reconstruction of the early history of the westernmost portion of Mariposa County. Architectural style is evidence also of cultural affiliation or influence, and the inadequate census records may be "fleshed out" by the careful study of architectural remains.

Evidence of Indian-white contact should be sought. Miners often employed Indians, especially in the early years of the gold rush. If, indeed, the Merced County Streams Project Area was abandoned by Native Americans as early as 1806 (and the evidence for this is very strong), the reintroduction of Native Americans, whether California Indian or otherwise, may be easily discernible in the archeological record.

It is possible that data on the Project Area during the gold rush can be derived from early newspapers, but there are problems here. The Mariposa Gazette, established in 1854, has had one of the longest continuous runs of California newspapers. The courthouse in the town of Mariposa has copies of the entire

run of papers available for research. The paper has not been indexed in any way, and use of the papers without a locational name is virtually impossible. Even a page-by-page reading of the paper may not yield specific information on the relatively remote portions of Mariposa County.

Nonlocal papers, such as the San Joaquin Republican and Alta California, were often vague on locational data, and it is hard to predict how much area-specific information they might yield. Examination of newspapers is very time-consuming, and the amount of data to be recovered is unpredictable. Recommendation of research of early newspapers does not seem warranted.

Ranching, farming, and intensive agriculture. The economy of the post-gold rush Merced County Streams Project Area followed the same stages of development as did the rest of the San Joaquin and Sacramento valleys (i.e, cattle and sheep ranching, non-irrigated farming, intensive agriculture, and urbanization), although the timing was not synchronous throughout the entire Great Central Valley. The chronological differences have been ascribed to a variety of "causes," and it would be interesting and valuable to investigate these. Answers to the following questions should give a clearer picture of the economic development of the Project Area, of the San Joaquin Valley, and of the Central Valley.

> What role did Spanish and Mexican land grant titles play in the economic development of the Project Area as compared with the San Joaquin Valley and the Great Central Valley?
>
> Where were the early cattle/sheep ranchers from, and what in their cultural background (if anything) led them to be ranchers instead of farmers? (and the converse.)
>
> Was the choice of location of ranch headquarters culturally influenced or was it a function of natural resource distribution?
>
> Does the location of ranch headquarters provide evidence that many early ranchers were from the southern United States (i.e., did they build on the "crick bottoms"?).
>
> Do the first crops provide evidence of place of origin of the early farmers?
>
> What role did ethnic minorities play in the economic development of the Merced County Streams Project Area?

Some of these questions can be answered through archival research findings, some through archeological research findings. The answer to the last question, for example, may be found in incorporation papers and ledgers of early ranches and farms. The ledgers often include names of farmhands, their places of dwelling, duties, wages, and other details of everyday living.

Since the Advisory Council on Historic Preservation (1980:58) recognizes that the: "contribution of those groups that wielded little economic power, and that were often illiterate, at least in English, to the history of the Nation and its regions are often poorly documented," records concerning them are worthy of serious investigation.

The railroad and urbanization. Since neither the railroad nor urban development existed directly within any of the four dam/reservoir areas (although railroad lines formerly ran just outside the Castle Dam area), it seems unwarranted to suggest research questions related to either the railroad or urbanication.

SITE-SPECIFIC HISTORY: CASTLE RESERVOIR

The Castle Reservoir area (i.e., portions of Sections 3, 8, 9, 10 16, 17, 21, and 22 of Township 6 South, Range 13 East, USGS Quadrangle, Winton) was little affected by the Gold Rush, and the first historic use of the land was probably as sheep pasture. J. W. Mitchell was an early owner of much of this land and, in 1855, he is shown as the owner of Sections 21 and 22 (California State Engineering Department Map 1885). In 1902 (some years after his death), he is still shown as owner of Section 21, but Crocker Huffman Land & Water had acquired Section 22 (Crocker Huffman Land & Water Company Map 1902). Mitchell's estate was large and complicated, and after his death in the late 1890s, the Fin de Siecle Investment Corporation was formed to manage the estate. Sometime between 1902 and 1909, title of most of his Section 21 had passed to R. Shaffer, with Bloss Land & Cattle Company acquiring the South ½ of the Southwest ½ (Official Map of Merced County 1909).

Much of the area around the proposed Castle Dam was subdivided into colonies and tracts in the early part of this century. Those closest to Castle were Arundel Colony No. 1 (Section 19), Casad Colony Addition No. 1 (Section 31), Merced Colony No. 3 (Section 18), Merced River Tract No. 1 (Sections 25 and 36), and the town of Amsterdam. The subdivided lands were all north of Canal Creek. Liberty Colony (Sections 21 and 22) was proposed south of the dam area in the early 1920s, and is shown on the 1932 Official Map of Merced County.

Two railroad lines were built directly east of the dam area. The Yosemite Valley Railroad went through Sections 24, 13, the northeast corner of 14, and then through 11. The Oakdale Branch of the Southern Pacific ran close to the line between Sections 23 and 24, continuing north through 14, and veering off to the west through the northeast corner of 14 and the southwest portion of 11. According to Merced County Tax Assessor Tylor (1981), both lines were torn out shorty after World War II.

Crocker Huffman Land & Water Company sold most of the proposed new reservoir area to Mary E. Crane (a niece of J. W. Mitchell) many decades ago, and she and her son Bert Crane now own most of that land.

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APPENDIX 2

INTERVIEWS

As a part of the Scope-of-Work interviews were required to be conducted with Native Americans, local residents, and other individuals who might have information on cultural resources and historical events which were assoicated with the project areas.

In compliance with this task, interviews were conducted by Jeanne Muñoz, Melinda Peak and Ann Peak. Each interview has been summarized.

Meeting in Mariposa
August 6, 1981

Coordinated by Jeanne Muñoz

Eight Native Americans form Merced and Mariposa counties (Nick Brocchini, Fern Fulcher, Les James, Jean James, Jay Johnson, Mary Lewis, Frank Ogler, and Helen Ogler), Patti Johnson of the U.S. Army Corps of Engineers, and Harvey Crew and Jeanne Muñoz of Ann S. Peak & Associates met in Mariposa the evening of August 6, 1981. Johnson, Crew, and Munoz described the Merced County Streams project, provided maps of the area and copies of reports of previous archeological research in the area for examination. The Native Americans asked questions, examined the materials, and expressed their interest in the project. Names of potential Indian monitors were suggested, and the possibility of other Indians visiting the project area was discussed. General concerns were voiced about such matters as appropriate treatment of burials.

No one of the eight know of any historic use of the project area by Native Americans, nor of any sacred sites or gathering sites there.

Follow-up (2) to
Meeting in Mariposa:
Interviews with
Jay Johnson

Interviewed by Jeanne Muñoz
August-September 1981

Jay John[illegible] a Miwok-Paiute Chairperson and Native American Heritage Commissioner, was consulted about specific concerns among local Native Americans in regard to burials (see Contemporary Native Americans (Appendix 1). He was later asked about petroglyphs in the Yosemite National Park area. He is very familiar with them, and is willing and able to examine those of the project area to determine possible stylistic affiliations.

Follow-up (3) to
Meeting in Mariposa:
Interviews with
Fern Fulcher

Interviewed by Jeanne Muñoz
August-September 1981

Fern Fulcher, a part Miwok resident of Atwater, volunteered to contact another Indian woman in Merced County (Denise Woodruff), and to find out if she might know anything about the Indians of the project area in the 1800s. At least fifteen calls were placed to her, only two of which found her home and well enough to come to the phone. She was equally as unsuccessful in reaching her acquaintance, and no new knowledge was gained.

Follow up (4) to
Meeting in Mariposa:
Attempt to contact
Wahilia Ocampo

Jeanne Muñoz
August 15, 1981

Wahilia Ocampo of the Indian Studies Department, Merced College, was recommended as a source of information by Fern Fulcher. She is out of town, in the process of moving, and the college does not know how to reach her.

Jeffrey Miller
63 So. Beard Blvd.
San Fernando, CA 91340

Interviewed by Ann S. Peak
August 11, 25, 1981

Mr. Miller spent considerable time on the property as a youth. He was shown the petroglyphs and old structural remains by his father.

Mr. Miller provided specific information on historic buildings, petroglyphs, and bedrock mortar sites in the Bear Creek study area. He gave details on the presence of several clusters of historic buildings, one of which had a stone fence in association. These houses were made of slate and had chinmeys, foundations, and floors. One of these foundations was about 20 feet by 12 feet in dimensions. He also stated that there is a stone slab marker with"Chinese" symbols inscribed on the face. However he was uncertain of the exact location.

He also described a stone slab building beyond the project boundaries and near the main Miller ranch headquarters on Miles Creek.

According to Mr. Miller, these buildings had always been called the Chinese Gold Mining Camps and were reputed to date to the 1850s or 1860s.

Mr. Miller also stated that he had never seen arrowheads on the property and did not know of any collection.

John (Rusty) Brocchini
Oak Road
Mariposa, CA 95339

Interviewed by Ann S. Peak
August 14 & 15, 1981

The American Indian Council of Mariposa County was contacted on or about August 14, 1981, about recommending a Native American observer for Peak & Associates' cultural resources survey for the U.S. Army Corps of Engineers' Merced County Streams project. Mr. Nick Brocchini indicated that his son, John (Rusty) Brocchini was available, and had had experience in archeological investigations. Rusty contact Ann Peak, president of the firm, on August 15, 1981, and he agreed to take the position as the Native American observer. He reported for work on August 17, 1981, and worked until September 3, 1981, when the field survey of the four reservoirs was completed.

Dwight Dutschke
State Historic
Preservation Office
American Coordinator

Interviewed by Jeanne Muñoz
August 19, 1981

Dwight Dutschke does not know any Native Americans in the project area.

Nancy Evans
Native American
Heritage Commission

Interviewed by Jeanne Muñoz
August 19, 1981

There are no Indians listed with the NAHC for Merced, Madera, or Mariposa counties. This does not mean none live there, but that none have expressed any interest in participating in cultural heritage or cultural resource activities.

Allen Beck
Fresno City College

Interviewed by Jeanne Muñoz
August 20, 1981

Allen Beck does not know, or know of, any Native Americans in the project area.

Dick Johnson
Fresno Unified School District

Jeanne Muñoz
August-September 1981

Attempts to reach Dick Johnson were unsuccessful.

Ed Castillo
University of California,
Santa Cruz

Interviewed by Jeanne Muñoz
August 28, 1981

Ed Castillo has been researching Spanish activity in the general Merced-Mariposa counties during the early 1800s. He states that he cannot say with any certainty that the Merced County Streams project area was definitely Yokuts or definitely Miwok. He states that his data suggest that the Castle Dam area was more likely than not Yokuts, and that Bear and Burns areas were either transitional or Miwok. He states also that the existing ethnographic maps are of no real use, as there is so much disagreement.

Charles Ostrander
Merced College

Jeanne Muñoz
August-September 1981

Mr. Ostrander is out of town.

Scott Pinkerton
P.O. Box 71
Mariposa, CA 95338

Interviewed by Melinda Peak
September 29, 1981

Mr. Pinkerton has done considerable research on the western portion of Mariposa County, focussed in the county line. He has done research on the stone house in Merced County which had erroneously been attributed to Fremont. He has gone back to the original survey notes for the Fremont grant and identified the location of a log cabin used by Fremont on lower Mariposa Creek.

He has never been to the Bear Reservoir project area, but has surveyed land immediately south of the project area (for Harry Chase). He knew that there were supposed to be petroglyphs in that area. He had never heard of or seen the upright slab enclosures within the project area. He suggested they might relate to the running of hogs from Mariposa to market at Merced.

By the late 1850s, the laws had changed and there were no Mexican miners left in Mariposa County. Many of the towns which had been predominantly Mexican were ghost towns by 1860. Nearby Toledo is a good example of this. The Chinese came into the Mariposa mining areas primarily in the 1860s and 1870s. They reworked many previously worked areas. Many old towns were totally or partially destroyed because the Chinese worked right up to the structures.

Many of the early structures were low--they have not fallen down. They consisted of half walls, topped by canvas. The canvas came from ships abandoned in San Francisco Bay during the Gold Rush.

The Chinese built their structures with at least one door or window oriented to the rising sun. The Chinese structures can also be identified by digging arcund for Chinese pottery. Also, a number of wild cat bones may be present as the Chinese ate wild cats for strength.

The Stockton Millerton Road was built along the foothills because of the annual flooding. It was the natural selection for a line when Merced County was divided off.

The book, Sam Ward and the Gold Rush, is the best source for the area.

Mr. Pinkerton believes that there is no one left who has information on the sites in Bear Reservoir. He gave the names of several people who lived or worked in the vicinity. They may have seen the sites but probably have no idea of their origin He believes that, in the reservoir area, because it has been held as a portion of a large ranch for so many years, it will not be possible to learn any more about the structures.

Interview with Scott Pinkerton, continued.

Mr Pinkerton has visited the site of Toledo and said that the sites at Bear sound similar. He believes the ovens may be of Mexican origian as they sound similar to those at Todedo, which was primarily Mexican.

Douglas Richard

Interviewed by Ann S. Peak and
Melinda A. Peak
December 10, 1981

Mr. Richards is the present tenant on the Miller properties in Bear Creek Reservoir. He stated that he did not know of any arrowheads, projectile points, or other artifacts found on the property. He was aware of some of the rock art, but had not found CA-Mrp-606 and several other of the petroglyph loci. He was also unaware of the presence of the prehistoric village sites, although he had seen all of the historic structures.

Marcus Arguelles
2290 W. Lopez Avenue
Merced, CA 95340

Interviewed by Robert Gerry
March 30, 1982

Mr. Arguelles is a Ph.D. candidate in archeology and resides in Merced. As a local resident and an archeologist, it was suggested he be contacted for information on the project areas.

Mr. Arguelles was familiar with the location of the project areas, but had no knowledge of any sites within or near the project area and did not know of any collections of artifacts from there. He recommended Mr. Charles Ostrander of Merced Junior College as the most knowledgeable in Merced area archeology and suggested we contact him.

APPENDIX 3

AUGER TESTING

The auger test holes (AT) were done with either a three-inch auger, or if the soil was too rocky, a shovel was used. The test holes were taken to sterile soils, or as far as the auger or shovel could effectively achieve. Shovel testing becomes difficult below one meter in a hole no wider than the blade. Sterile in this context means cultural deposits are absent, whether a midden development or simply an artifact-bearing deposit. It is admittedly difficult to determine a non-midden cultural deposit, since only artifacts provide the necessary evidence. All soil was shovel broadcast and carefully examined for artifacts. No screening was done. Upon completion of the excavation of the auger holes, they were backfilled.

AUGER LOGS

Castle Reservoir

CA-Mer-257

Test Hole #1

Depth:	0-50cm, sterile
Soil:	sandy, silty loam, light brown
Artifacts:	none
Location:	Datum

Test Hole #2

Depth:	0-50cm, sterile
Soil:	sandy, silty loam, light brown
Artifacts:	none
Location:	179 degrees, 28 meters from datum

Test Hole #3

Depth:	0-100cm, sterile
Soil:	sandy, silty loam, light brown. It became moister with depth
Artifacts:	none
Location:	149 degrees, 3 meters from datum

CA-Mer-258

Test Hole #1

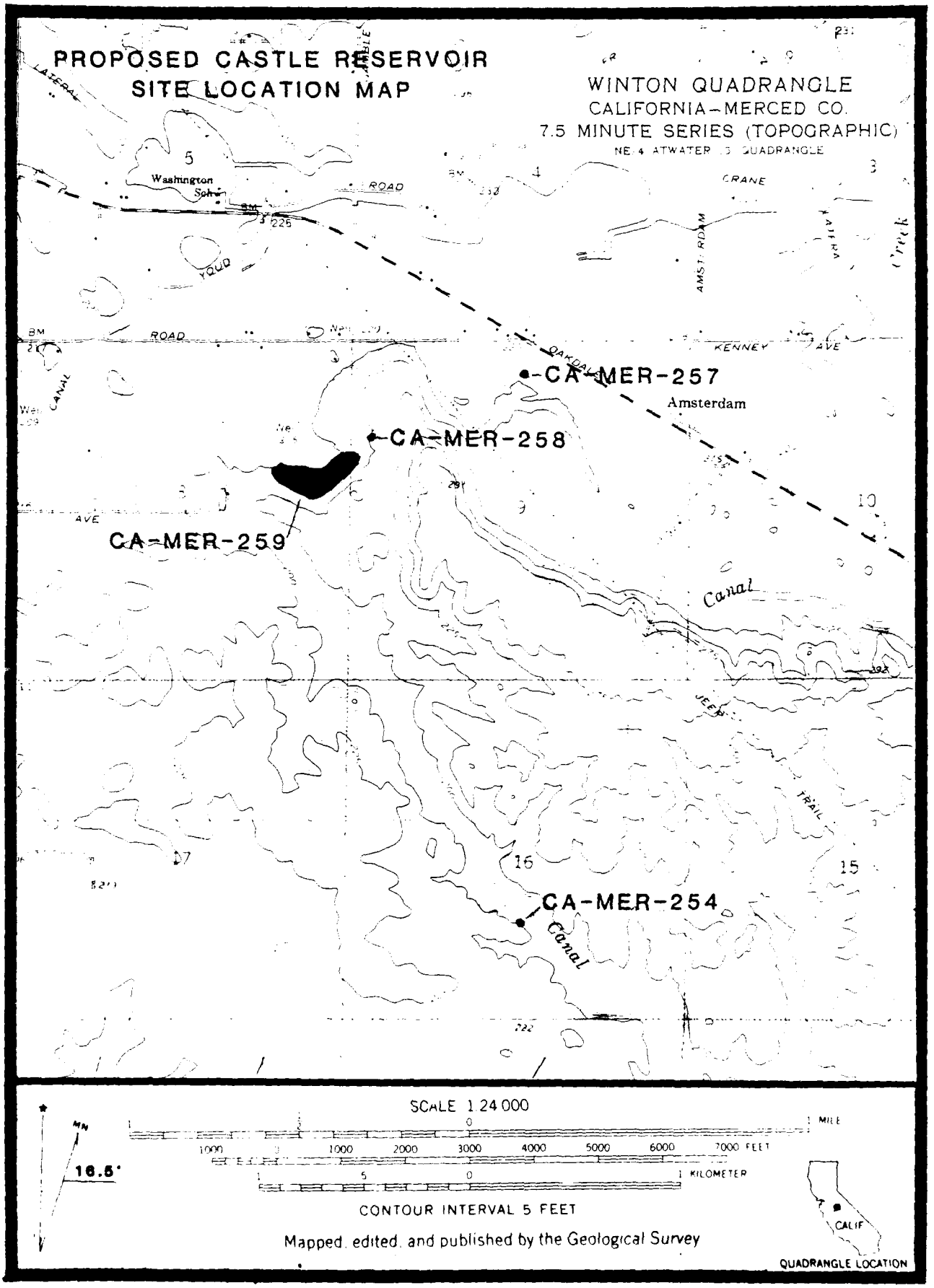
Depth:	0-50cm
Soil:	sandy loam, grey
Artifacts:	none
Location:	at datum

Test Hole #2

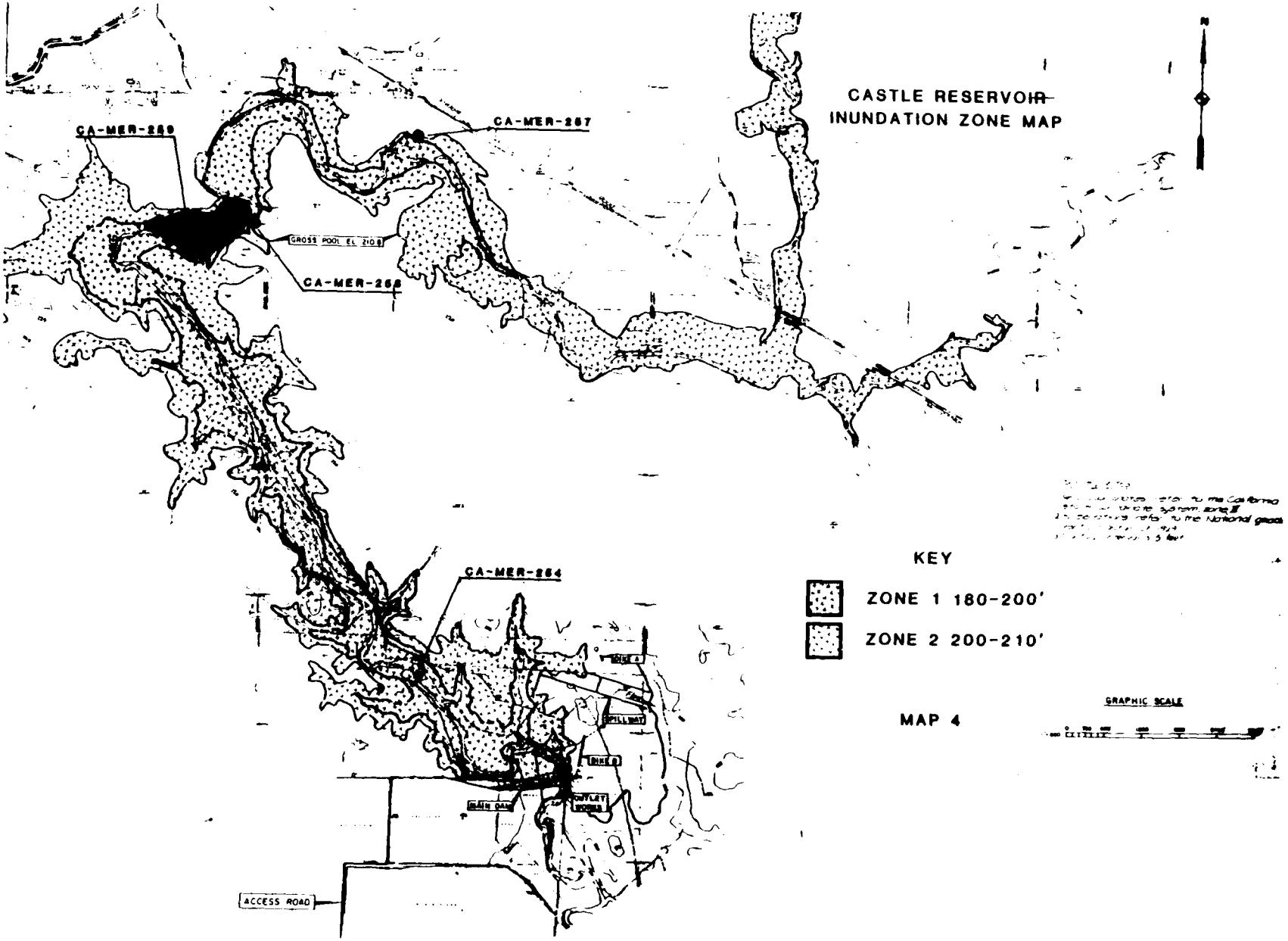
Depth:	0-50cm
Soil:	sandy loam, grey
Artifacts:	none
Location:	170 degrees, 28.8 meters from datum

Test Hole #3

Depth:	0-50cm
Soil:	sandy loam, frey. West at the bottom
Artifacts:	none
Location:	148 degrees, 46 meters from datum


PROPOSED CASTLE RESERVOIR
SITE LOCATION MAP
WINTON QUADRANGLE
CALIFORNIA–MERCED CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE 4 ATWATER 15 QUADRANGLE
CA-MER-257
Amsterdam
CA-MER-258
CA-MER-259
CA-MER-254
Washington Sch.
ROAD
CRANE
AMST. RDAM
KENNEY AVE
CANAL
Canal
JEEP TRAIL
SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETER
CONTOUR INTERVAL 5 FEET
Mapped, edited, and published by the Geological Survey
MN
16.5°
CALIF
QUADRANGLE LOCATION

MAP 3


CASTLE RESERVOIR
INUNDATION ZONE MAP
CA-MER-269
CA-MER-267
GROSS POOL EL 210.8
CA-MER-268
CA-MER-264
SPILLWAY
MAIN DAM
OUTLET WORKS
ACCESS ROAD
KEY
ZONE 1 180-200'
ZONE 2 200-210'
MAP 4
GRAPHIC SCALE

END

DATE
FILMED

5 -83

DTIC